BUILDING YESTERDAY'S SCHOOLS

An analysis of educational architectural design as practised by the Building Department of the Canterbury Education Board from 1916-1989.

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A thesis summited in fulfilment of the requirements for the

Degree

of Doctor of Philosophy in Art History.

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the University of Canterbury.

2014

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Acknowledgements.

First, sincere thanks to my supervisors, Ian Lochhead and John Freeman-Moir, for their scholarship, expertise, patience and encouragement in guiding me through this process. From my point of view their presence was both stimulating and reassuring.

Much of my research time was spent in various archives in Christchurch and Wellington and I grew to appreciate the skill and knowledge of the professional archivists who taught and helped me so much. I would like to offer my sincere thanks to Jill Durney, Erin Kimber and the staff at the Macmillan Brown Library at the University of Canterbury. The archivists and librarians at the National Library, the Alexander Turnbull Library and Archives New Zealand, all located in Wellington, were always willing to help and I appreciated their advice and knowledge. However my major research was focussed on the CEB files held at the Christchurch branch of Archives New Zealand where my presence became something of a fixture over four years. My appreciation of the professionalism and understanding exhibited by Chris Adam's team is profound. I would like to offer my special thanks to three highly skilled archivists, Katherine Doig, Rosie Ballantyne, Caroline Etherington and Archivist Support Person, Vicki Hawes, who despite having to cope with life in a building compromised by earthquake damage, worked serenely through aftershocks to maintain an exceptionally high level of service.

I would like to acknowledge Colin McGeorge for his willingness to share his knowledge of nineteenth and twentieth-century pedagogy and his expertise in educational history in general. John Wilson was most generous in permitting me to use images from his photograph collection while Peter Penlington provided me with the fruit of his research about the life of his grandfather, George Penlington. I was fortunate in being able to interview several of those involved in the administration of the Canterbury Education Board as well as several professional employees of the Building Department. I thank them all for their candid observations that did so much to enliven my study of CEB correspondence and memos. Special acknowledgment is due to Len Stone whose clarity of recall did much to explain the way in which the Building Department operated, and Peter Greening, who, despite facing severe and on-going personal problems caused by the Canterbury earthquakes, was always prepared to help in deepening my understanding of issues that were not always apparent from my study of archival information. It was a privilege for me to interview George Dryden shortly before his death; his acute

observations were a real highlight of my research. Thanks are also due to Douglas Horrell who provided me with some enlightenment about the arcane world of formatting.

This thesis is dedicated to my wife, Sheryl Williams, not only for her proof reading skills but for her general support and her ability in helping me maintain a sense of perspective throughout what has been a long journey!

Abstract.

This thesis considers the nature of primary, intermediate and district high school buildings designed by the Building Department of the Canterbury Education Board from its consolidation in 1916 until its termination in 1989. Before 1916, the influence of British models on the CEB's predecessors had been dominant, while after that date, Board architects were more likely to attempt vernacular solutions that were relevant to the geographic situation of the Canterbury district, the secular nature of New Zealand education and changing ideas of the relative importance of the key architectural drivers of design i.e. function and form. One development, unique to Canterbury, was that for a short period, from 1924-29, a local pressure group, the Open Air Schools' League became so powerful that it virtually dictated the CEB's design policy until the Board architects George Penlington and John Alexander Bigg reassumed control by inflecting the open-air model into the much acclaimed veranda block. The extent to which Board architects had the freedom to express themselves within a framework of funding control exercised by the Department of Education was further circumscribed by successive building codes that, at their most directive, required national standardisation under the 1951 Dominion Basic Plan and to a slightly lesser extent under the1956 code and associated White Lines regime. Following World War 2, the use of prefabricated structures had prompted the recognition that better designed relocatable rooms could hold the key to a more flexible and effective allocation of resources in an environment increasingly subject to rapid demographic change. By the end of the period, the exploitation of new construction technologies and modern materials led to the dominance of the relocatable CEBUS buildings in Canterbury schoolyards. A concurrent development was the response of architects A. Frederick (Fred) McCook and John Sinclair Arthur to the Department's call to design more flexible spaces, i.e. open planning, to facilitate a change in pedagogical method. Other issues raised in this study are the CEB's solutions to the challenges of building on the West Coast, and the recurring need to ensure structural integrity in a region where there was a continuous risk of seismic activity.

Canterbury Education Board
Department of Education
George Penlington
John Alexander Bigg
Albert Frederick (Fred) McCook
John Sinclair Arthur
Building Codes: 1921, 1951, 1956, 1970, 1971.
Open-air classrooms, Veranda Block, Dominion Basic Plan, White Lines, Open Plan Schools, Prefabs, Unit rooms, CEBUS relocatables

Abbreviations.

AG	*Ashburton Guardian.*
AJHR	*Appendices to the Journals of the House of Representatives.*
ANZC	Archives New Zealand, Christchurch.
ANZW	Archives New Zealand, Wellington.
ARIBA	Associate of the Royal Institute of British Architects.
CCL	Christchurch City Libraries.
CEB.	Canterbury Education Board.
CEB Minutes.	Canterbury Education Board Minutes and Reports of Committees.
CEBUS	Canterbury Education Board Unit System.
CM	Canterbury Museum.
DBP	Dominion Basic Plan.
DSISDAC/DISDAC	District Senior Inspector's Schools Development Advisory Committee.
EBA.	[New Zealand] Education Boards' Association.
EP	*Evening Post.*
LT	*Lyttelton Times.*
MB.	Macmillan Brown Library.
NCEB	North Canterbury Education Board.
NZCER	New Zealand Council for Educational Research
National Education	The Journal of the New Zealand Educational Institute.
NZEI	The New Zealand Educational Institute.
NZIA	The New Zealand Institute of Architects.
NZOYB	*New Zealand Official Year Book.*
NZPD	*New Zealand Parliamentary Debates.*
OASL	The Open Air Schools' League.
PPTA	The Post Primary Teachers' Association.

Note on Illustrations.

The majority of illustrations are derived from contemporary sources: architectural designs produced by the CEB Building staff and photographs taken to record the construction process and the completed buildings. Plans and drawings available were often site copies and at best were creased from continual folding or at worst were also torn and tea-stained. After use, these records had been stored at the various CEB premises where conditions were far from optimal, hence the damage apparently caused by dampness. Some drawings were affixed into files by the use of a split pins that have degraded so much that separation of these documents was judged too dangerous. Photographing such records often proved extremely challenging: the most obvious problem has been the impossibility of aligning some of these images squarely.

Many of the Building Department photographs are by amateurs rather than professional photographers and the results are often blurred and poorly focussed, a problem compounded when the resulting images were affixed, (usually glued) into ledgers or onto foolscap-sized sheets of light card. In most cases horizontal or vertical alignment of these records was apparently not a priority and hence the presentation of such photographs as illustrations is often far from ideal.

An enjoyable part of this project was the field work completed by the writer. Some of the large numbers of photographs taken have been included; there is, however, no excuse for the shortcomings in these images.

List of Illustrations: (All page references are to Volume 2)

Notes on changes to currency and measurements.

The period under review straddles major changes in New Zealand's currency and measurement systems. The former was changed from the denominations based on the British Imperial system to the more straightforward decimal system on July 10, 1967. The transition from the imperial system of measurement to the metric system was much more protracted and took place over the period 1969-76. To avoid cluttering the text, the relative amounts and measurements have not been translated into decimal and metric values each time such an imperial value is cited. The following tables, however, can be used as guide to the basis on which the transformations were made.

Currency change.

Before July 10, 1967, the currency was based on the New Zealand pound (£). The pound was subdivided into 20 shillings, each of which was further subdivided into 12 pennies. (i.e. 240 pennies to the pound and 12 pennies per shilling) As a result of the change, the pound was translated into 2 dollars, each dollar being subdivided into 100 cents.

Measurement change.

Imperial Measurements	Metric Measurements
one inch	25.4 millimetres
one foot, (plural: feet)	0.30480 metre
one yard	0.91440 metre
one mile	1.60934 kilometres
one acre	4047 square metres

Introduction.

As a baby boomer, I was, of course, a child of the prefab generation. At primary school I experienced school life in a series of these 'temporary' buildings that were placed on the periphery of the school's permanent blocks. In the early 1950s, prefabs had no electric power and the lack of artificial light created a cave-like sensation on cloudy days. Heating was accomplished with a coal-fed potbelly stove; on frosty mornings, those who sat in the front roasted while the back rows froze. Later, I was re-acquainted with a similar structure from a different perspective; this time as a young secondary school teacher. I found myself working in a prefab designated as 'P5', a room so far removed from the rest of the school that it was over the road from the permanent classrooms. Bare floor boards, rotting window joinery and consequent leaking along with the feeling of isolation from the rest of the school, combined to create a feeling of neglect; I felt, an implied, and at times, an actual devaluation of the worth of the pupils and of my professional effort.

So, how important are school buildings to the educative process? [1] In 1999, a check list of criteria as to what makes a 'good school' was gleaned from a survey of international research that isolated thirteen major 'ingredients'.[2] None of them specifically mentioned the importance of buildings but three could be interpreted to imply a certain standard of accommodation.

The school is welcoming to students and parents.

The school is a pleasant place to work for students and teachers.

The school is a safe place.

The last was, however, further defined as 'a place where there is little bullying' while the first could be seen to refer to the quality of the school culture rather than any requirement for a reasonable standard of educational infrastructure. Even the second stricture could be seen at least partially as a function of the people who work in the school rather than the nature of the buildings. However, before downplaying the role of school architecture as an irrelevancy, it should be noted that there is some evidence to indicate that the quality of school buildings has

[1] In a Utopian vein, but with undoubtedly serious critical intent, John Dewey had shuddered at the idea of school buildings of any kind being separated from the rest of society. He regarded this arrangement as being inimical to his view of democratic education, especially for younger children, as being best achieved by observation and experimentation under the guidance of older and experienced practitioners in settings thoroughly integrated into society as a whole. See John Dewey, Dewey Outlines Utopian Schools in Jo-Ann Boyston (ed.), *John Dewey, the Later Works, 1925-1953, vol.9; 1933-1934*, Southern Illinois University Press, Carbondale 1986, pp.136-140.

[2] Cathy Wylie, *What makes a good school,* NZCER, 1999*,* www.nzcer.org.nz These included*, inter alia,* a clear focus on learning and achievement, high expectations for every student to achieve, students enjoying learning, and getting clear, quick, and useful feedback on their work.

significance in the formal learning process. In 2004, the Ministry of Education commissioned a report to enable the development of best practice guidelines for New Zealand schools.[3] The researchers used studies in the USA and Australia as well as their own local data to conclude that 'While classroom design is not the main contributing factor in enhancing learning outcomes, a poorly designed learning environment will detract from learning.'[4] The report then isolated key factors to take into consideration for good design: size and shape of teaching spaces, the means of ventilation, temperature control, lighting, acoustics and noise management, and the nature of construction material, furniture and fittings. In 2012, a preliminary indication from a British study attempting to quantify the importance of school design concluded that 'the proportionate impact of the built environment factors on learning progression, in the context of all influences together, equated to a 25 per cent contribution on average.'[5] Obviously none of this research was available to the Canterbury Education Board designers from 1916-89, but much of the above is common sense and CEB architects were generally practical professionals who were keen to ensure that their work was planned in a form that they considered was in the best interests of pupils and teachers.

In the context of the United States, this 'sensible' checklist has been given a legalistic dimension in that basic standards of educational accommodation have been given formal sanction via Congressional recognition and in some state courts' decisions. In essence, children have the right to be schooled in 'decent facilities';[6] Cynthia Uline has listed the features that American children and their communities should be able to anticipate in public schools. They should be structurally safe, contain fire safety measures, sufficient exits, an adequate and safe water supply, an adequate sewage disposal system, sufficient and sanitary toilet facilities and plumbing fixtures, adequate storage, adequate light, be in good repair and attractively painted as well as containing acoustics for noise control.[7] With the addition of adequate warmth and ventilation,[8] an effective list of mandatory principles is created. Two points should immediately be made about these basic requirements; first, the tenor of Uline's article is to admit that even in the United Sates in 2000, such a desirable situation remained ideal rather than real, especially in the cases of badly maintained schools in poorer areas. Second, the term 'adequate' needs careful

[3] *Best Practice in School Design*, Report by A.C. Nielsen for the Ministry of Education, 2004, www.minedu.govt.nz/
[4] Ibid., p.18.
[5] These results were from a pilot study by the University of Salford and Nightingale Associates. *www.building.co.uk/news/.../**classroom-design-has**.../5045865.article*
[6] Cynthia L Uline, Decent Facilities and Learning: Therman A. Milner Elementary School and Beyond, in *Teachers College Record,* vol.102, Columbia University, February, 2000, p.442.
[7] Ibid., pp. 442-443.
[8] Ibid., p.449

qualification. This thesis is a study of schools in Canterbury built in the period 1916-89 and it is important to realise that we cannot project our twenty-first century notions of adequacy backwards in time. For example, the Canterbury Education Board, (the CEB), provided some isolated rural communities in the 1920s with schools that featured toilet facilities consisting only of screened open pits, an action that is certainly not 'adequate' viewed through a twenty-first century lens, yet, such was the reality of the available sanitary technology in some areas of the district under the Board's jurisdiction that pupils would not have felt unduly disadvantaged; most would have been used to such conditions at home. Adequacy, therefore, must be judged in the context of the times. From a wider New Zealand perspective, the basic physical attributes of a school have never been the subject of overt legislative requirement, but since 1921 it has been incumbent on the designers of schools to conform to Departmentally-determined building codes increasingly overlaid by health, safety and fire protection regulations.

All architecture is subject to the tension between function and form. In an article reprinted by *National Education* in 1939, the English architect Denis Clarke Hall, argued that the three bases of school design, 'Function, Human Association, and Aesthetic Value, must be expressed to an equal degree of importance.' He saw the interaction of the second and third principles as producing 'an extremely pleasant association for a child combined with intellectual value.'[9] In 1955, N. Pyl maintained that school architecture should be 'stimulating to look at [and]… exciting to enter'.[10] By extension this further underlines the argument that the school's physical appearance sends messages to those who teach and learn within the buildings. Neo-Gothic cathedrals of learning built in the 1870s may have looked impressive from the road but to small children starting school, the structures could have seemed overbearing and frightening although this was probably not a concern of educational administrators at the time. Eighty years later, a row of mouldering prefabs straggling along the schoolyard fence-line transmitted a different message; state education was seen as a cut rate commodity, far from the ideal of a school as a welcoming place for the immediate stakeholders: pupils, teachers and parents.

Changes in educational philosophy also drove the nature of school architecture and this issue will be examined in an attempt to account for dramatic revolutions in design that could occur relatively quickly. For example, up until 1920, the Board was constructing Queen Anne brick buildings as the basic design for new schools and new blocks of extra classrooms;[11] five years

[9] Denis Clarke Hall, School Design, *National Education,* August, 1939, p.272.
[10] N.Pyl, Our Functional Primary Schools, *Education,* November, 1955, p.21.
[11] In this context, the term can be used in the sense of the revival of this style, dating from about 1860 in Britain and featuring, *inter alia,* 'eclectic motifs drawn from many sources, including tall, white painted, small paned sash

later the CEB Building Department was responding to the demands from individual school committees to provide them with timber shed-like structures that had suddenly become fashionable. On the other hand, some changes were more evolutionary and measured; community distaste for temporary structures slowly transformed into an acceptance by local committees that 'permanent' buildings were not necessarily better in terms of providing adequate accommodation for local children. The impetus for such shifts in thinking will also be analysed. Did these and other changes spring from direction from above, (i.e. the Department of Education), or were some new ideas independently developed by the Board's architectural team on its own initiative? To what extent could groups outside the professional education bureaucracies influence the nature of the Board's building policies? Was it desirable for teachers to have the right to offer advice or even to have a direct input into the planning process? Were Board architects leaders in designing models that reflected the specific needs of the district or were they simply technicians applying templates devised by others?

This thesis considers the way in which the Canterbury Education Board's design of primary, intermediate and district high schools (some of the latter eventually becoming area schools), changed over the seventy three years of its existence. It should be emphasised that the Board's responsibilities did not extend to private schools, or to dedicated state secondary schools, that is, the standard 'High School' that catered for pupils from Forms 3 to 7, which, in broad terms, provided free education for pupils between the ages of 13 and 17. The latter institutions were administered by boards of governors composed of elected parental representatives and outside appointees.[12] When new buildings were required, these bodies liaised directly with the Department of Education; thus new schools and additions to existing schools could be designed by government architects under the auspices of the Public Works Department. However, it was possible for boards of governors to appoint outside architects and certainly in Canterbury it was not unknown for secondary school boards to contract the Canterbury Education Board to carry out specific projects.

There is no disputing the fact that the Canterbury Education Board was the major influence in designing school buildings in Canterbury from 1916 to 1989; over this period the Board had responsibility for more than 300 schools. Funding was derived from the Wellington based Department of Education that in turn was reliant on cabinet allocation from central government

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windows, monumental chimneys [and] Dutch gables.' James Steven Curl, *A Dictionary of Architecture,* Oxford University Press, Oxford, 1999, p.529-530. (This reference includes a much more exhaustive coverage of the features of this style.)

[12] *The Education Act of 1914*, Section 89 (1) required secondary schools to include a representative of the relevant district board on their boards of governors. New Zealand Acts As Enacted, http://www.nzlii.org/nz/legis/hist_act/

revenue; a constant theme was the need to cut costs, especially in times when the tax base was under pressure and when other government departments were more successful in arguing the primacy of their cases for greater funding. In such circumstances the regional providers of buildings, the boards, were urged to restrain expenditure; at worst this often revealed itself in what seemed to be mindless penny pinching, but occasionally more systemic economy was achieved by specific planning direction that threatened the employment of local board architects. Yet over the period 1916-89, the CEB did have considerable planning independence and this thesis explores the decisions made by its architects and attempts to place their work within the context of contemporary design influences both nationally and internationally. An attempt will be made to evaluate the fitness for purpose of the schools they planned and to investigate the extent to which CEB architects made a valid contribution not only to the cause of education in Canterbury, but in a wider sense to the country as a whole. The buildings planned over this period are 'yesterday's schools;' this is not necessarily a pejorative term but simply a convenient label to differentiate them from buildings provided under 'Tomorrow's Schools',[13] the new administrative system that came into being in October 1989.

Prior to this date, the Canterbury Education Board was elected by the school committees on a ward system, each member representing approximately twenty schools. Board meetings were held monthly in Christchurch, and part of the business was to consider the report of the Board's Building Committee, a standing subcommittee, usually comprising six to eight members, who had met earlier in the week to review the monthly progress made and to set future targets and policy for the group of employees variously called the Building Department, the Architects' Office or the Building Staff. The staffing of this section varied; in the 1920s one architect and two draughtsmen handled all the design requirements of the Board while in the depths of the Depression one designer and one draughtsman were the only employees that could be afforded to carry out the much diminished work load. By 1953, the staff of this section had increased to an Architect, an Assistant Architect, an Engineering Assistant and four draughtsmen. By the late 1960s, the head of the Department was now designated Chief Architect and supervised two Assistant Chief Architects, a Senior Architect and several other qualified practitioners. By 1988, there were 27 personnel employed in what was by then termed the Architectural Section; in

[13] Rt. Hon. David Lange, *Tomorrow's Schools, The Reform of Education Administration in New Zealand,* Government Printer, Wellington, 1988. This document sets out the shape of the new system of education administration in New Zealand that is based on the concept of the self-managing school.

addition to architects and draughtsmen, the staffing complement now included quantity surveyors and a heating engineer.[14]

This investigation is the first in its field in attempting an in-depth survey of the building achievements of the Canterbury Board; a layer of difficulty is added because there is no adequate wider history of this institution.[15] It is true that the Board sponsored the preparation of a history of education in the district to mark the occasion of the Canterbury centenary in 1950;[16] this is a formal 'top down' record of the changes to the way in which education was administered over the century and of the types of schools that existed in Canterbury in the centenary year. It is not a history of the CEB *per se* and it covers only part of the chronological period reviewed in this thesis while there is little attention paid to school architecture. Nor is there a general history of school buildings in New Zealand; the closest is a short survey by Tom Howarth in 1977.[17] Despite its brevity this is a valuable resource because the author worked for the Department of Education for 29 years in roles ranging from Schools' Development Officer to Deputy Director of Buildings.[18]

The architectural history of other boards is also a largely neglected area although Kay Matthews includes a concise but liberally illustrated survey of the subject in her general history of the Hawke's Bay Board.[19] The most definitive general history of any board in New Zealand is Ian Cumming's meticulous study covering the Auckland Education Board, but this review stops in 1957, the Auckland Board's centenary year, and references to buildings are only sporadic throughout the 758 pages of this monumental work.[20] However Auckland Board architecture has attracted at least some specific attention in that one M.A. thesis has been presented surveying the topic from 1970-89.[21] The compiler of the history of the Wellington Education Board

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[14] *CEB Annual Reports,* 1920-70. 1988 figures from a return from Greening to Carswell, ANZC, CASY, CH229, box 22, March 14, 1988.

[15] It is probably true to say that the general history of the CEB will never be written. In every case, those published by other boards were funded by the boards themselves, usually to mark centenaries, although Southland and Hawke's Bay hastily commissioned histories in the late 1980s before they were terminated. Details are provided later in this introduction .

[16] A.G.Butchers, *Centennial History of Education in Canterbury*, Canterbury Education Board, Christchurch, 1953.

[17] In comparison, the architecture of English schools traditionally widely used as models by New Zealand designers has a deeper historiography. For the purposes of this thesis, the work of Malcolm Seaborne and Roy Lowe proved extremely useful. *The English School, its architecture and organisation,* Volume 1*, 1370-1971* and Volume 2*, 1870-1971,* Routledge and K. Paul, London, 1971 and 1977.

[18] A.T.R Howarth, School Buildings: 1877-1977, in *Education,* vol.26, no.7, School Publications, Department of Education, Wellington, 1977, pp.7-13. The article continues with a survey of secondary school buildings, pp.14-17.

[19] Kay Matthews, *Behind Every School: the History of the Hawkes's Bay Education Board*, The Hawkes's Bay Education Board, Napier, 1988, Chapter 3, pp.21-30.

[20] Ian Cumming, *Glorious Enterprise: the history of the Auckland Education Board 1857-1957,* Whitcombe & Tombs, Christchurch, 1959.

[21] Marie Louise Sommer, Changes in School Design, 1970-89, in the Auckland Education Board District, unpublished M.A. thesis, University of Auckland, 1989.

restricted his account to Board politics,[22] while the Wanganui Board made only a brief textual reference to school buildings in its history, although some excellent photographs were included that could have complemented an architectural history.[23] A similar comment could be made about V.G Boyle's account of the Southland Board.[24] The writer of the centenary history of the Otago Board contented himself with a few photographs of buildings and a short biography of architect, Clifford Muir, but otherwise ignored the subject of school architecture.[25] H.A Insull's study of the Taranaki Board from 1841-1971 did feature a brief review of school design in the district but this analysis was limited to two pages.[26]

This thesis is heavily reliant on Canterbury Education Board records. The annual publication, the CEB report is a valuable resource, and although both the Education Library at the University of Canterbury and the Christchurch branch of Archives New Zealand, (ANZC), hold partial collections, there are still a few gaps in the sequence between 1916 and 1989. The best source of information available to build a narrative of understanding about the factors that influenced the evolution of building design can be gleaned from the CEB Minutes and Reports of Committees. ANZC holds a complete set of these documents that cover the relevant period under the CAMJ agency, and they constitute a rich source of information for the historian. ANZC also has custody of the plans and working drawings for many of the projects undertaken by the Board under the CAMQ agency, and a parallel set of files, under the CAMJ agency, record relevant correspondence between the Board and the Education Department as well as tender details for each project. The Macmillan Brown Library at the University of Canterbury and the archival collection at Canterbury Museum are repositories for some of the plans drawn by private architects when the Board contracted work to the private sector.

Two major 'external' events have provided some problems in the research for this thesis. The Canterbury earthquakes of 2010-11 compromised the archive storage system at the Canterbury Museum to the extent that the records were not available to researchers although luckily some of the relevant resources had been consulted before the closure of this facility. The archives of the Christchurch City Council were similarly unavailable. ANZC was forced to relocate many of its

[22] Trevor Tritt, *It was resolved, A history of the Wellington Education Board, 1872-1972,* Wellington Education Board, Wellington,1973.
[23] Wanganui Education Board, *Beyond the horizons of the day, the first one hundred years of the Wanganui Education Board, 1878-1978,* Wanganui Education Board, Wanganui, 1978.
[24] V. G Boyle, *Southland Education Board 1878-1989: a history*, Southland Education Board, Invercargill, 1989.
[25] J. McK Miller, *The Otago Education Board 1856-1956: a brief history*, Otago Education Board, Dunedin, 1957. (The reference to Clifford Muir is on p.102.)
[26] H.A Insull, (ed), *The Taranaki Education Board: beginnings, struggles, progress,* Taranaki Education Board, New Plymouth, 1979. (The reference to school architecture can be found on pp.95-96.)

records to offsite storage; most of the material was still accessible but the necessary time lag between ordering and delivery of the files was frustrating at times.

The second event proved to be more of a problem. When the Board was terminated in October 1989, some of the remaining personnel were somewhat disaffected to the extent that not all records were appropriately treated. There is strong anecdotal, 'off the record' evidence from several independent sources that some files and collections of drawings were unofficially disposed of rather than being forwarded to the local branch of Archives New Zealand for collation and preservation. To some extent, this resource gap could be rectified in that the Wellington Office of Archives New Zealand (ANZW), holds files created by the Department of Education in Wellington when dealing with the CEB and these usually included some copies of the original Board correspondence about various projects; however, the absence of the original CEB files also implies the loss of the candid intra-office memos and frank letters from school committees. Such evidence, when available, does much to illuminate issues that otherwise could be professionally obscured by emollient official correspondence. A large number of staff salary cards are also missing from the CEB records and do not even appear in Archway, the Catalogue of Archives New Zealand; the few that do exist provide valuable information about the career progression and the exact dates that various employees worked for the Building Department. However, several of the surviving participants in the narrative, including architects, draughtsmen, CEB members and employees, as well as former principals and teachers, consented to be interviewed and their observations and conclusions helped to strengthen the primary evidence base of this thesis.

Newspaper reports, comment and letters to the editor are always valuable, with those from the Christchurch paper, the *Press,* being the most useful even if the consultation of the relevant microfilm required trips to the Alexander Turnbull Library in Wellington in the dark days of 2011 when the Christchurch Public Library was not functioning. The continuing development of Papers Past, an on line collection, is a boon in that it makes it possible to search for relevant material in major metropolitan papers as well as those from smaller country areas. This resource was used extensively for the first three chapters. Two periodicals were immensely valuable: the Department of Education's *Education* was the former's attempt to popularise official thinking and policy changes, while *National Education*, was the official publication of the New Zealand Educational Institute, the primary teachers' union. Both Macmillan Brown and the Education Library at the University of Canterbury house collections of what could be called jubilee booklets commemorating the various anniversaries of a large selection of schools. These range

from professionally researched and presented publications to those that consist of a few cyclostyled stapled sheets. Many of these booklets are illustrated and it is the dated photographs of buildings, often as backgrounds incidental to the main subject of the image, that are of particular interest to the architectural historian in providing at least a partial snapshot of schools' building stocks at specific times. Lastly, much of the built evidence of the CEB's designs still exists in the yards of Canterbury schools, much of course has been altered and modified but in many cases the bones of these structures have survived later cosmetic surgery.

The starting point of this thesis is 1916, the year in which the previous thirteen education boards were consolidated into nine.[27] The former North Canterbury Education Board based in Christchurch was the most affected in this restructure as it was asked to absorb the smaller boards of South Canterbury, Grey and Westland to form an enlarged district to be administered as the Canterbury Education Board. Chapter One is a brief account of the types of school buildings constructed during the period from the founding of the Canterbury settlement in 1850 until 1916. This study is necessary to give context to the challenges faced by the new board in dealing with its inheritance of Victorian and Edwardian buildings that were no longer appropriate in the post-war period. Chapter Two analyses the work of Board architect, George Penlington, and the way in which he responded to the first departmental building code. However this decade, the 1920s, was also highly significant because the traditional axis of Board design and Departmental approval was upset to the point whereby the Open Air Schools' League came close to imposing a new concept of school architecture on the Board's professional team. Chapter Three attempts to explain this phenomenon and analyses the methods by which Penlington gradually reasserted Board control over its right to design its own buildings. In Chapter Four, the CEB's response to the exogenous shocks of depression and world war is examined, and in Chapter Five, what is often seen as the Board's Building Department's most successful era is considered with the development of the veranda block, an economical yet stylish and functional solution to the district's demand for new classrooms. Although this was a regional vernacular solution, specific to the needs of the Canterbury Plains, it was so successful that it was adopted by several other boards. In Chapter Six, the Board's less successful response to perhaps its greatest challenge, meeting the accommodation needs of the post war baby boomers, is examined against the framework of a more directive central government intervention. In Chapter Seven, the reaction to the Department of Education's requirement for

[27] As a consequence of the *1877 Education Act*, the colony of New Zealand was subdivided into twelve education boards but in 1884, a schism in the least populated district, the West Coast of the South Island, led to its sub division into the Westland and Grey Boards, thus increasing the number of districts to thirteen. (See Chapter 10, p.191 of this thesis.)

the provision of ‘flexible’ space to enable the promotion of an imposed change in pedagogical method is analysed and assessed. Chapter Eight considers the Board’s successful answer to the need to provide a better standard of non-permanent classrooms, a solution so successful that its CEBUS technology blurred the distinction between temporary and permanent structures. Chapter Nine is an account of the way in which the Board tried to provide for the specific needs of intermediate schools and in Chapter Ten, the school buildings constructed on the West Coast are considered separately on the grounds that geographic and climatic differences demanded a different set of solutions in comparison to building on the dry Canterbury Plains. In Chapter Eleven, the achievements of the Building Department’s last decade are considered against the background of the looming and eventually realised threat of the termination of the Board system. Finally, in Chapter Twelve, an attempt is made to assess the contribution of CEB Board architects by highlighting their undoubted successes in counterpoint to the areas in which their work was less memorable.

Chapter One. Victorian and Edwardian Footprints.

Early European settlement of New Zealand had been haphazard and overtly exploitative but by the third and fourth decades of the nineteenth century there had been at least a superficial change to the official British attitude to colonisation of this new frontier. A conjunction of a growing influence of the Church Missionary Society at the British Colonial Office, the theories of the fertile mind of Edward Gibbon Wakefield, and the structure provided by the New Zealand Company led to a more systematic approach towards settlement. Examples such as Wellington in 1839-40, Nelson in 1841, and Otago in 1848 were more organised ventures although the profit motive ultimately outweighed any of the higher-minded ideals professed by those who were concerned to at least minimize the harm to the indigenous Maori people;[1] viable settlements were always predicated on the ability to acquire, by whatever method, cheap land from its tribal owners. The concept of planting a cross section of English society on the plains of the east coast of the South Island was organised by a new group, the Canterbury Association, and was based on the premise that the values of hierarchical High Anglicanism should become an institutionalised part of the new settlement. The adoption of this moral precept did little, however, to prevent speculation in land, some of it carried out by absentee English owners, although the Association persisted with the ideal that Canterbury was an 'ecclesiastical polity' that should be underpinned by a heavily endowed Anglican church which would be supported by an education system that would be similarly funded.[2]

The settlement of late 1850, based on the new city of Christchurch, would eventually be subject to a discernible demographic shift, especially after the Vogel-inspired immigration of the 1870s, but the power base in local provincial society and politics for at least the first twenty or thirty years was, for the most part, dominated by men who had been born and educated in England.[3] It follows that those who were responsible for designing the schools in the new settlement would have absorbed, consciously or subconsciously, the views of early Victorian England as to the

[1] W.H Oliver, *The Story of New Zealand,* Faber and Faber, London, 1960. Chapters 5 and 6 present a brief background to the concept and practice of planned colonisation.
[2] L.C Webb, *A History of Canterbury,* Volume 1, Whitcombe & Tombs Limited, Christchurch, 1957, p.178.
[3] By 1874, 33% of the Canterbury population was English born, a greater proportion than any of the other main centres, and although 41% were born in New Zealand, at this stage many of these would have been children. Refer to Malcolm McKinnon (ed.), *New Zealand Historical Atlas,* Bateman, Auckland, 1997, Plate 53.

function and form of educational institutions. The most relevant models for elementary schools in England in the days before the *Education Act of 1870* would have been those administered by local churches. Dixon and Muthesius argue that whether the inspiration came from the Roman Catholic Pugin or the Anglican Butterfield, Gothic Revival, at least in a simplified version, would have been the expected language for the designer of parish schools.[4]

The possibility of similar outcomes existed in early Canterbury as the provincial government's initial policy was to delegate education to the churches.[5] This was achieved through subsidising the income generated from fees charged by the denominational schools and the largest portion of this assistance went to the Church of England. For example, in 1857, Bishop Harper received £1700 to dispense as he saw fit while the Methodists and Presbyterians were allocated £250 each; it is probably fair to assume that this allocation was based on the denominational breakdown of the population at this time.[6] The first evidence about the nature of school buildings in the province can be seen in the analysis of the Tancred Commission that reported on the state of education in Canterbury in 1863.[7] The Commission identified 37 buildings in use for educational purposes; excluding the endowed Christ's College, only nine had been built 'expressly as school rooms' for public use. The other schools were either operating from churches, church halls or private homes. The nine purpose-built schools were individually described in the report and in general appeared to be rectangular structures that attracted such descriptions as 'unfinished and unlined.'[8] No information was given in the report about the style or the materials used in these early buildings although given the paucity of funding at this time it is likely that timber would have been the predominant fabric.

By the early 1860s, dissatisfaction with the inequity of the funding system and concern about haphazard standards, led to a gradual unwinding of the denominational grants and finally, by 1873, their complete suspension. Education in Canterbury was then administered by a board, effectively a department of the Provincial Government. Funding of primary education was provided from government revenues, complemented by its ability to levy a special rate on

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[4] Roger Dixon and Stefan Muthesius, *Victorian Architecture,* Thames and Hudson, London, 1985, pp.236-238.
[5] From 1853 until 1876, New Zealand was administered under the *Constitution Act of 1852* that set up a system of provincial self- government. This legislation reserved some powers for central government but as education was not one of these, the provinces assumed the right to set up and administer their own systems. L.C Webb, *A History of Canterbury,* Vol.1, p.212.
[6] A.G.Butchers, *Centennial History of Education in Canterbury,* Canterbury Education Board, Christchurch, 1953, pp. 30-37 and 46- 47.
[7] *Report of the Education Commission, 1863*, published by the Canterbury Provincial Government at Christchurch in 1864. H.J Tancred chaired the commission responsible for the investigation.
[8] Ibid., pp.35-37.

property owners in school districts. Both streams of revenue were enhanced as the province entered a period of economic growth based on profits from high country sheep farming, arable cropping and the railway boom of the 1870s.[9] By 1873, primary education was effectively 'free' and secular, and it is only at this point that a sustained programme of primary school construction commenced. By the mid-1870s, the Christchurch municipality had a population of nearly 11,000, and the relatively compact nature of the city made it worthwhile for the provincial government to invest in a few large, architecturally-designed schools.[10]

The search for English influence is immediately rewarded by a consideration of what were to become the four largest schools in the province. England Brothers completed Samuel Farr's Christchurch West Borough School in 1874 for a contract price of £3,500. Although it is not clear if Farr had undertaken formal architectural training in England, he had worked there as a builder, and continued to earn his living in this way while residing in Akaroa before moving to Christchurch.[11] His new single-storey main structure was planned in the form of a U shape open to the southeast, with a street frontage of 121 feet and a depth of 21 feet forming one large 'school' space. The wings running at right angles at each end of the frontage were 108 feet in length and included two classrooms in each wing of 30 x 22 feet and 36 x 22 feet. Photographs show that the main structure featured round-arched windows and steeply pitched gables enhanced by highly decorative bargeboards. However the element most redolent of the Gothic Revival was Farr's use of a large tower at the centre of the facade, that from the street view, (then part of Lincoln Road), appeared to hover almost independently of the main structure. The formal entry to the school was through the ground floor of the tower that also featured two oriole windows at the first floor level. Above this, the structure displayed lancet windows and at the next level a small pavilion roof appeared to be anchored by four slender towers; above these a similar feature accentuated the verticality of the design. **(Fig. 1)** In effect, the eclectic nature of the various styles revealed in the tower, transformed a basic school building with Gothic touches into one which was also visually arresting, although the *Star* reporter was content to observe merely that the front view 'was very neat'.[12]

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[9] For details of the growth of the Canterbury economy, see W.J Gardner (ed), *A History of Canterbury,* Volume 2, Whitcombe & Tombs, Christchurch, 1971, Chapters 8 & 13.
[10] Population figures from *Statistics for the Colony of New Zealand,* New Zealand Registrar-General's Office, Wellington, 1874, p.22.
[11] Pam Wilson, The Architecture of Samuel James Farr, unpublished MA thesis, University of Canterbury, 1982. Farr's background and his designing and building experience in Akaroa are reviewed in Chapter 1 of this thesis.
[12] *Star,* 13 October,1874. The dimensions of the building were also sourced from this report. It appears that the article was based on the actual specifications. (This paper was founded by the daily morning paper, *Lyttelton Times,* in 1868, to exploit the demand for an evening newspaper.)

Meanwhile across town, the school for the Christchurch East district was in the process of being planned by Benjamin Mountfort, an architect steeped in the Gothic tradition, both by virtue of his English training under the tutelage of Richard Carpenter, and through personal conviction as an adherent of High Church Anglicanism. Mountfort had designed at least one parish school before he emigrated in 1850, that at Croft in Herefordshire; its style was Middle Pointed Gothic and its fabric consisted of local stone.[13] The design for the school in Gloucester Street, Christchurch, twenty-five years later, reveals that although his commitment to Gothic still existed, he had adapted to his new environment. The familiar spire was still present, as were the stone faced buttresses, which in association with the pointed arches, presented the effect of an arcade. However the East and West Christchurch schools were similar in that the major external cladding was timber, a medium which was abundant and therefore cheap and also implied a saving in the costs of the more specialised labour required to work with stone.[14] **(Fig. 2)**

Sydenham School, then known as the Colombo Road School, was designed by the Glaswegian, John Whitelaw, who came to architecture via a building apprenticeship in Scotland and, like Farr, had worked as a builder after he arrived in Canterbury. By 1873, Whitelaw was the Chief Clerk of Works in the Provincial Engineer's department, and it was in this capacity that he was responsible for the planning and construction of this school.[15] Again, the building was constructed of timber but there were certainly Gothic overtones in the high gables with bargeboard detailing similar to the school at West Christchurch as well as narrow windows with rounded arches.[16] The obligatory spire featured louvred lancet windows on each face of the supporting tower yet it is plainer than those designed by either Farr or Mountfort and overall the building was more straightforward and lacked pretension.[17]

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[13] See Ian Lochhead, *A Dream of Spires,* Canterbury University Press, Christchurch, 1999, p.33 for more details of this school. Chapter 1 of this book provides a survey on the values, knowledge and skills that Mountfort brought with him from England.

[14] Benjamin Mountfort, Architectural Plans, Christchurch East District School, Canterbury Museum, AP 386. The school was referred to interchangeably as East Christchurch and Christchurch East. Eventually the latter title came into common usage.

[15] It was not unusual for Clerks of Work to act as *de facto* architects for the Canterbury and North Canterbury Education Boards. Such a policy had an advantage in that it was cheaper to hire a person with this job description than one with the title of architect. See p.22 later in this chapter for examples of this practice.

[16] Round arched windows were a feature of Collegiate Gothic, a style used at Oxford and Cambridge, and much copied when Gothic was chosen for educational institutions.

[17] Images of this building can be found at ANZC, CALN, 3802, CH182, box 2, ctc 400/129.

The Normal School was undoubtedly intended to be the most significant of the four major buildings designed and executed by the Provincial Government. It was erected on a prime central city site at the intersection of Kilmore and Montreal Streets on the north-eastern corner of Cranmer Square. The structure was to be multi-functional, serving as a model primary school and a teachers' training college as well as providing office space for the Province's educational administrators. Such was the importance of this project that the design was subject to competition and a significant budget of £10,000 was eventually provided for the building alone. The winner, Samuel Farr, was allowed the luxury of producing a large L shaped building with fabric of Halswell basalt faced with white Oamaru stone. From a visual point of view the building displays some uncompromisingly Gothic features with its buttresses, lancet arches and plate tracery providing touches, which, Pam Wilson argues, show the influence of Pugin, although she claims that this was probably a subconscious reference on Farr's part.[18] **(Fig. 3)** The octagonal corner room, surrounded by pinnacles, created a focal point that was originally even more striking before the iron finials were removed. The Montreal Street wing was initially truncated for budgetary reasons although Thomas Cane, who had been the Provincial Architect, finally completed the building in 1879, three years after the first stage had been opened in 1876. This extension followed Farr's original concept while eschewing the more intricate decorative features.

The Normal School has achieved a certain notoriety and has been cited as tangible evidence for the notion that its orientation towards the south was a sign of an abject colonial genuflection to the dictate of an unknown English designer, who, wilfully or ignorantly, failed to account for the fact that New Zealand was located in the southern hemisphere.[19] This is little more than a romantic construct as later criticism of the building's consequent gloom and dankness really misses the point that Farr, like Mountfort and Whitelaw, delivered schools which the clients wanted and which were based on the educational principles of the day as espoused by British authorities. The ideal situation for pupils was assumed to be that natural light should fall from the north (i.e. the south when adjusted for Southern Hemisphere conditions) on 'account of the heat and glare in summer'.[20] Therefore although it is true that the northerly aspect of the Boys' School, the Kilmore Street wing, was taken up by corridors that shut out warmth and natural

[18] Pam Wilson, thesis, p.110.

[19] This charge was repeated by Paul Pascoe in an official government publication; *Public Buildings*, *Making New Zealand, pictorial survey of a century,* Department of Internal Affairs, Wellington, 1940, vol.2, no. 21, p.15. Pam Wilson has visited this controversy in Chapter 4 of her thesis, as has the Christchurch City Council Town Planning Division, in a booklet, *The Normal School*, first published in 1981 and revised in 1982. These sources have been used for much of the material on the Normal School.

[20] Joseph Landon, *School Management,* Kegan, Paul, Trench, Trubner and Co. Ltd, London, 1909, p.176. This book was first published in 1882 and went through 13 editions, an indication of its popularity and influence.

light, this was by deliberate design and considered to be in the pupils' best interests. The girls, housed in the wing parallel to Montreal Street, had to put up with light from the west which was not considered ideal but was thought to be better than direct exposure to the north. **(Fig. 4)** Mountfort had adopted a similar policy in terms of fenestration and corridor placement at the Christchurch East School in Gloucester Street. The small window space as a proportion of the total exterior wall area must have ensured that the building would have been cold and lacking in natural light. However in the context of the High Victorian age, the outward form of the school building was of paramount importance and therefore the aspect from the street was the defining image for the architect and his clients.[21] The message sent to the outside world was one of permanence and gravitas and was complemented by the implied authority of organised religion. It is interesting to reflect on a contemporary Australian view of the function of public education. A.G Austin starts from the premise that there was a desire for

> an orderly, united respectable society… based on an unquestioning acceptance of European enlightenment views… [and] that to achieve this aim they needed to develop procedures which brought the unruly elements of colonial society under control… [22]

The paternalism and moral self-confidence implicit in the quoted view was undoubtedly also a feature of the type of education offered in Canterbury. Nineteenth century primary schooling was based on the mass instruction of children who were forced into a rigid hierarchical mould from which they would hopefully emerge as responsible young antipodean Britons fit to serve the greatest empire the world had ever seen. Perhaps the ultimate metaphor for this type of teaching was the use of gallery seating. In his working drawings for the Christchurch East School, Mountfort produced detailed plans for six tiered rows of stepped seating and fixed benches which were in almost universal use in larger schools at this time; comfort for pupils was not a criterion. Gender separation was also an important aspect of primary education and the measures taken to achieve this would persist well into the twentieth century. Mountfort's plan for the Christchurch East building showed a girls' gate in the school fence leading to a girls' yard allowing access through the gender relevant porch where the drafting continued. Younger females entered the 'Juvenile Girls' school' at ground level and those who had attained the necessary academic distinction were allowed to ascend the stairs to the 'Elder Girls' School'.

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[21] Both the Christchurch East and Normal schools were on the northern sides of Gloucester and Kilmore Streets respectively and therefore the street aspect was oriented towards the south which implied that the back of the building was north-facing. It is not a coincidence therefore that these two buildings were the most heavily criticised for their coldness and lack of light.

[22] A.G Austin, *The Australian Government School, 1830-1914: select documents with commentary,* Carlton, Victoria, Pitman, 1974, pp.2&5.

The boys endured a similar process to enter their portion of a building that was effectively divided in two.[23]

The expenditure on new buildings by the Canterbury provincial government reached heights not to be seen again in the nineteenth century. Over the period 1864-1876, £155,006 was spent; £54,518 of this in just one year, 1874.[24] By the end of 1877, the controlling board was responsible for 119 schools ranging from Christchurch East with a roll of 1155 down to small aided schools with fewer than ten pupils.[25] It follows, therefore, that in an attempt to present an overall view of the school buildings erected during the provincial period, reference should also be made to the situation in areas outside the city of Christchurch. Opawa (then called Hillsborough) is an example of a school then situated on the periphery of the growing city. In May, 1872, the *Lyttelton Times* noted that the contract for the new school on the corner of Garlands and Opawa Roads had been let for £282.[26] For this amount, two timber cottages were built; the schoolhouse with its steeply pitched roof with three north-facing windows and an attached porch, and a similar structure which served as the Master's house.[27] The latter was in the form of the classic colonial cottage later typified by W.J Gardner as the 'two down, two up and lean-to' model, in this case with a front veranda to provide an air of domesticity.[28] The Ashton school, near Ashburton was opened in 1876, and although the photograph, **(Fig. 5),** was not taken until early in the twentieth century, it seems likely that this is an image of the original building.[29] It is a structure remarkably comparable to that provided for Opawa, and featured similar fenestration, a steeply pitched roof with no eaves and horizontal weatherboard cladding. In these two examples it can be seen that the province was taking a much more pragmatic attitude to the construction of non-urban schools; there was obviously no thought of introducing the expensive features of Gothic Revival to small sole-teacher establishments. However this is not to say that all country schools were completed without the benefits of professional design. In 1876, the Cust School relocated to a larger site, and a new building, to accommodate 120 students, was planned by Frederick Strouts. The three-roomed weatherboard structure featured a

[23] Benjamin Mountfort, Architectural Plans, Christchurch East District School, C.M, AP 386.
[24] *CEB Annual Report*, 1877, p.4
[25] *NCEB Annual Report*, 1878, p.18 (NCEB material is held at ANZC under the CAMJ agency, accession CH207). Aided schools were those that were established on the understanding that the local community would pay a portion of the direct cost, either in pupil fees or in providing the school building.
[26] *LT*., 31 May , 1872.
[27] Photographic evidence from Opawa School, *Opawa School 125th Jubilee,* Opawa School Jubilee Committee, Christchurch 1997, p.9.
[28] W.J Gardner, *Where They Lived,* Regional Press, Christchurch, 1999. (See the caption to Plate 8, between pages 56 & 59.)
[29] ANZC, School Histories, CH210, p.46.

large central gable, accentuated by the bold timber framing that incorporated two lancet windows and was flanked by ecclesiastical porches very similar to those employed by Mountfort at Christchurch East.[30] This evidence suggests that in the last years of the provincial government, size of the school and perhaps the wealth of the local community were more important than location in terms of the design approach that was used.

In 1876, a major constitutional event was to prompt an equally significant change in the administration of education in Canterbury. The experiment of provincial government was abandoned and the *Education Act of 1877* legislated for free, secular and compulsory primary education on a national basis. Despite the efforts of some 'centralists' who favoured the abolition of the education boards, the latter were retained but split into geographic areas that supposedly made local administration more efficient. That centred on Christchurch became the North Canterbury Education Board and was now responsible for an area that ran between the Rangitata and the Clarence rivers.[31] In terms of building policy the NCEB's role was to act as an intermediary to funnel Departmental money into projects demanded by existing school committees and also by householders requesting the formation of new school districts and hence new schools. However, over the next twenty years, the available funds for new buildings slowed dramatically; the depression of the 1880s was probably the main reason as the increase in central tax revenues stalled, and net government debt rose.[32] Parsimonious Ministers of Education, for example George Fisher, became increasingly sceptical about the ability of provincial boards to provide equitable outcomes and saw a tightening of funding allocation from central government as being in the national interest.[33] In the 1880s, the NCEB Building Reports carried increasingly plaintive comments, for example, in 1884, it was noted that, 'The Board desires to point out that the amount granted for building purposes for the last two years has been quite inadequate'.[34] In 1887, the NCEB decided that it could no longer afford 'the professional services of an architect' and resolved to 'discontinue this service and to replace the position with a Clerk of Works'.[35] This step did generate some savings as even by 1891, the incumbent, Peter Schmidt, was paid a salary of only £200 whereas his counterpart in Auckland, who had the title of Architect, was paid

[30] Photographic evidence from Cust School, *125 years Reunion, 1992,* Cust School, Cust, 1992, p.11.
[31] The former Canterbury Province ran from the Waitaki in the south to the Hurunui in the north. McKinnon (ed), *New Zealand Historical Atlas,* Plate 51.
[32] C.G.F.Simkin, *The Instability of a Dependent Economy,* OUP, London, 1951. The table titled Public Finances, 1870-93 on page 147 illustrates this problem.
[33] George Fisher's campaign against what he saw as the wasteful spending of the Education boards is well documented by J.D.S Mackenzie, *New Zealand Journal of Educational Studies*, vol.5, no, 2, 1970, pp. 115-124.
[34] *NCEB Annual Report*, 1884, p.vi.
[35] *NCEB Annual Report*, 1887, p.6.

£300. By 1892, Schmidt's salary had been increased to £225 but in Otago, the Board Architect was paid £324 and had the assistance of a Clerk of Works on £200 per annum.[36] Another issue, which impacted on the funds available for new work, was the high cost of maintenance for those timber buildings erected in the 1870s. The need to re-paint them was a recurring commitment but there were more fundamental problems revealed in the structure of these schools; 'the heavy outlay caused in connection with re-roofing at St Albans, Amberley, Christchurch West, Sydenham and Cust' was noted in the Board report of 1897.[37]

In the light of this financial stringency, when the average annual amount spent on new school buildings in North Canterbury between 1880 and 1900 was only £3522,[38] it is interesting to assess whether there was any noticeable effect on the form of new work and the extent to which the design of bigger schools continued to reflect the influence of British models. After Forster's Act of 1870, which introduced compulsory elementary education to England and Wales, there was an accelerated demand for primary schools. Seaborne and Lowe claim that the last thirty years of the century was a period of flux and disagreement as to the ideal form of the new schools although the influential school architect, Edward Robert Robson and his partner John James Stevenson, both with a strong background in Gothic Revivalism, nevertheless 'rejected Gothic as belonging to an age of widely different popular habits'.[39] They then decided that the less formal Queen Anne style was more appropriate and this development became a recognisable stylistic shift in the construction of board schools. It is also worth noting that at least in London, a shortage of land determined that the new board schools tended to be multi-storeyed, and if there was a typical example in the British capital, it would most likely be a 'tri-decker' constructed of yellow brick with red brick contrasts.[40] Given the abundance of land in Canterbury, there was less pressure to conserve space by building upwards.

In this context it is interesting to consider the case of Addington Primary, the first major urban school constructed under the NCEB. Completed in 1881, this weatherboard building, although described as Gothic, had few of the expected embellishments of this style; the windows were

[36] *AJHR,* 1891, E-1, p.6 and 1892, E-1,p.6
[37] *NCEB Annual Report*, 1897, p.6
[38] The average annual amount credited to the Buildings Account from 1880 to 1900 was £8447, the fact that only 42% of this was actually spent on new buildings gives some indication of the financial burden posed by the ongoing need to repair and maintain the largely wooden building stock. See the *NCEB Annual Reports* 1880 - 1900, General Statements of Receipts and Expenditure.
[39] Seaborne and Lowe, Volume 2, p.30.
[40] Dixon and Muthesius, p.239.

rectangular and there was a complete absence of spires or a tower.[41] The gables remained, but these were remarkable only for their plainness and the prominent ventilation ports. Whether the contracted architect, A.W. Simpson, was aware of the dimming of the Gothic halo in Britain is not known but it is probably more likely that this relatively spartan approach was one born of budgetary constraint. However it is also tempting to speculate that the nature of the classroom itself was starting to become more important than the outward form of the building and there is some evidence that design from the 'inside out' was becoming a relevant concern to NCEB planners. In 1880, a new policy was promulgated.[42] This presented a very precise specification for a standard single room school. The building was to measure 41 x 22 feet and could accommodate up to 72 children; this is the equivalent of 12.5 square feet per child, an allowance that was later to attract the criticism of Minister of Education, George Fisher. When mounting his crusade against education board profligacy, he saw this space allocation as extravagant, especially when British board schools operated on 10 square feet per pupil.[43] The NCEB further specified that walls were to be at least 12 feet high with windows opening at top and bottom. These requirements, in association with the use of ventilator tubes which expelled vitiated air from turrets on the roof, were considered likely to remedy the problems of foul air which had already led to criticism of the schools built in the 1870s although it should be noted, that the large buildings of that era did have highly specified systems for the intake of fresh air and its removal when depleted.[44] The policy also included a reference to the installation of gallery seating according to the London School Board system, an indication that British models were still considered relevant by the NCEB.

While the building of new schools had slowed in the last twenty years of the century, the Board continued to provide alterations and extra facilities as they could be afforded. An examination of the methods and materials employed provides an indication that in the 1890s, quality materials were used, and that contractors were directed to employ them according to precise instructions. When extending the caretaker's house at Addington School, American redwood was specified for all doors and sashes, local red pine was approved for the roof sarking, and kauri was the

[41] *LT,* 19 February , 1881. This article noted that, 'This building will be of the Gothic style and consist of two large rooms each 41 by 22 feet [and] will be fitted with a gallery for infant classes.'
[42] *AJHR*, 1880, H-1A, p.69.
[43] *AJHR,* 1888, E-1c, pp.1-10. This ministerial statement was the climax of Fisher's assault on the boards. With the aid of several tables and graphs he proved, at least to his own satisfaction, that since the end of provincial system, central government had provided £90,000 more than was necessary to provide durable buildings. He then asked the rhetorical question, 'What has been done with the money?' Ibid., p.9.
[44] See for example the relevant working drawings in Mountfort's plans for the East Christchurch School. CM, AP 386.

default timber to be used when there was no other direction. Weatherboards were to be 6 inch x 1 inch 'wrought and chamfered red pine' but the two bottom boards were to be of totara.[45] A similarly detailed approach was used when new country schools were built, for example at Allenvale; the specification document, fifteen pages of immaculate copperplate, required totara for bottom plates and sleeper joists with the use of kauri as noted above. The roofing material was to be 'corrugated iron of an approved brand' and there were careful directions as to the use of lead for the flashing of each of the chimneys. The painter was instructed that the exterior should be primed with a mixture of red lead and linseed oil and completed with 'three good coats of oil and lead paint, which should not be thinned with turpentine.'[46] Thus, the NCEB was obviously committed to this version of late nineteenth century 'best practice', despite the fact that that it was creating a toxic time bomb for later generations.

The costs of maintaining wooden buildings may have prompted a re-examination of the economics of construction in this medium; certainly, a change in policy became evident for new urban schools after 1890 and the school in Waltham Road is a good example. As the *Star* reporter noted, 'The building is constructed of permanent materials, the walls being of brick, faced with Homebush pressed bricks and set on concrete foundations.' Readers were assured that, 'Provision is made for the thorough ventilation of the building, and at the same time, draughts were guarded against'.[47] Subsequent photographic evidence shows a high gabled building with a large street-facing feature window framed with a brick lintel and pilasters, while the structure was supported with slender but plain stepped buttresses. The building does allow a small bell tower on the roof ridge but there is no vestige of the exuberant Gothic features, which characterised the style of the 1870s. **(Fig. 6)** There was also an apparent retreat from the 1880 policy of 12 square feet of space per pupil as, assuming that the precise classroom areas given were correct and the roll projection of 300 was realistic, the ratio was now slightly under 10 square feet. Waltham School was certainly an unusual design in the context of what came before, perhaps an indication of a new hand on the Board's architectural tiller. Peter Emil Schmidt had been born in Germany and immigrated to Canterbury as a thirteen-year-old. As with Farr and Whitelaw, he accumulated the practical experience of a building background, as well as having worked for J.C. Maddison as a Clerk of Works until his employment with the

[45] Addington School Additions, ANZC, CAMQ, 3008, CH662, box 1b.
[46] Ibid., box 9da.
[47] *Star,* 17 July, 1891.

NCEB commenced in 1887.[48] However it is likely that Schmidt also had the examples of British board schools to use as references. It was not unusual for local architects to have access to British architectural magazines and the Waltham School is broadly similar to the relatively plain St Albans School for Boys, Hatfield Road, in its fenestration, gables and buttresses.[49]

The unfortunate incident at Addington School, when the original wooden building was destroyed by fire in February 1909, probably reinforced the NCEB's policy of using permanent materials for larger school buildings. Peter Schmidt had retired in 1906, and his successor was George Penlington whose style in designing brick buildings was to become easily recognisable.[50] Addington's replacement block featured brick gables that terminated with a 'sunburst' motif topped with a semi-circular cap. The classrooms featured generous fenestration with banks of mullioned rectangular window joinery with recessed lights, probably to reduce problems of glare from direct sunlight. The ornamental chimney units, which articulated the rooms within, created a slightly discordant note but the overall effect could be seen as a reference to English board schools. **(Fig.7)**

In 1911, a five-room brick building, designed by Penlington, was completed in Somerfield Street, South Spreydon. It was noted that this was a 'large and commodious school…with wide corridors and well ventilated rooms'.[51] Photographic evidence clearly shows the slim turrets used for this purpose piercing the ridge line of the roof as well as the fenestration system that featured hopper windows above and below fixed panes. The gable that was finished in zig-zag polychromatic brick added a touch of Queen Anne whimsy although the roof line was somewhat cluttered with a large number of chimneys and ventilators. (**Fig. 8)** In 1914, Penlington completed a two-room school at Waimairi, the latter showing a development in that the architect had moved way from featuring individualistic unsupported gables in favour of a more conservative pediment although the latter was visually overpowered by the intrusive framing effect of two tall chimneys. The rectangular wooden window joinery was encased in concrete

[48] The background details of Schmidt's earlier career can be found in the *Cyclopedia of New Zealand*, *1903*, Cyclopedia Company of New Zealand, Wellington, 1903, p.172

[49] The design was by John and S. Flint Clarkson and appeared in *The Builder,* 20 January, 1883. This plan was sourced from the collection assembled by S. Hurst Seager, Volume 14, *Places of Instruction,*, n. pag. Schmidt may have consulted the plan either directly from the magazine, alternatively he may have had access to Seager's compilation.

[50] The NCEB's caution was again evident. Penlington was, like Schmidt, initially appointed as Clerk of Works on a yearly salary of £250. (*AJHR* 1906, E-1, p.1) It was not until 1910 that he was officially designated as Architect on a salary of £300. As a point of comparison, the Secretary, effectively the Board's CEO, was paid £462. *NCEB Annual Report*, 1910, p.5.

[51] *NCEB Annual Report,* 1911, p.8.

mullions and lintels and the use of natural light was optimised by the positioning of the top row of windows at the height of the classroom ceiling. The use of bands of bolstered bricks and a relieving arch in this medium helped to minimise the potential blandness of the brick exterior**. (Fig, 9)**

Examination of the specifications for these types of buildings designed by Penlington before World War One offers an interesting glimpse of the construction methods of the day. Concrete mixing was still a manual process, and for Beckenham School in 1914, Penlington required a very exact system in that a 'water tight platform of not less than 14 by 10 feet' was to be used, and the mixture was to be 'turned over twice dry and twice wet and thrown carefully into the trenches.' There was to be a cavity of 3 inches between the double brick walls that were to be secured with 'stout galvanised ties'. The external walls were to have decorative features in that the 'flat arches over the windows were to be of chipped clinker bricks' with 'Redcliff stone keystones'. The roof was to consist of red Marseilles tiles and was to be supported with oregon purlins and principals. It is fair to say that such schools were built to last but they were far from brick sheds: they presented evidence of thoughtful concern that the building should be visually pleasing.[52]

Towards the end of the NCEB period, there is evidence that the Board was approving the modification of some aspects of the older buildings that did not suit more modern teaching methods. The tiered system of gallery seating was a reminder of the policy of 'whole school' instruction when this system of accommodation was used to increase the capacity of the room, as well as to facilitate the control of large groups of pupils. By the beginning of the twentieth century, there was an increasing tendency in Britain to organise instruction in smaller 'classes' hence the need for more 'classrooms' and fewer large 'halls.' In 1912, S.E. Bray claimed that 'the objections [to gallery seating] more than outweigh all the advantages.' He was particularly concerned about the occupation of space 'which is needed for the free circulation of air', and the accumulation of 'dust and organic matter' below the fixed seating and benches 'where the air is almost stagnant and impregnated with gases injurious to health.' The problem of young children hurting themselves falling down the steps was also highlighted.[53] Some Canterbury teachers and their school committees had already recognised the disadvantages of this seating configuration, and moreover they were asking the NCEB to improve the situation. As early as 1891, the

[52] Specifications from ANZC, CAMQ, 3008, CH662, box 1bt.
[53] S.E.Bray, *School Organisation,* W.B.Clive, University Tutorial Press, London, 1912, pp.23-24.

Board's Building Committee had acceded to the request from Glentunnel School to remove the gallery and the graded floor of its schoolroom.[54] In 1915, Riccarton School applied for a similar alteration but had also recognised their changing needs by requesting the partitioning of the single space into two classrooms. The specifications for this contract directed the builder to 'remove the grades.' and to reuse the salvaged timber to repair the floor, and to complete the improvements by covering both sides of the partition with asbestos sheeting, which should then be completed with what remained the Board's standard direction to painters, to 'cover the whole of the new partition… with three good coats of lead and oil paint'.[55]

By 1916, the educational landscape of the area under the jurisdiction of the NCEB offered evidence of the changing views of what was appropriate and desirable in terms of educational architecture. The three great examples of the Gothic Revival high tide of the 1870s in Christchurch still existed[56] although all were prompting questions as to whether they were fit for the purpose as primary schools in the twentieth century. A typical modern school in the growing city area was now brick, although most would also have some older wooden buildings on site. To some extent this pattern could be seen to be emulating the wider development of public building throughout the country whereby the first generation of 'primitive' structures was 'replaced by larger timber buildings… in turn succeeded by brick and stone.'[57] However, as of December 1915, fifty per cent of the 222 schools under the jurisdiction of the Board were Graded 0, 1 or 2, and the great majority of these would have been sole charge country schools built of wood.[58] It is not a simple task to generalise about the origin of the major influences on the form of school buildings. Two generations had passed since the foundation of what had been a church-sponsored English settlement and Canterbury had been subject to demographic and social change. The backgrounds of the designers themselves reflected this progression, as the British-born practitioners of the first thirty years were succeeded by a German whose practical training was in New Zealand and finally by an architect who was born and trained locally.[59]

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[54] *Star,* 16 July, 1891. At this time, reports of monthly Board meetings were reproduced verbatim in this newspaper.
[55] ANZC, CAMQ, 3008, CH662, box 6cd.
[56] Christchurch West, Christchurch East, and the Normal School.
[57] Peter Richardson, Building the Dominion: government architecture in New Zealand, 1840-1922, unpublished Ph.D. thesis, University of Canterbury, 1997, p.339.
[58] *NCEB Annual Report,* 1915, p.1. Schools were graded according to their rolls. Grade 0 was for a roll of 1-8, which by definition would be an aided school, as the NCEB would not pay the full costs of establishing and maintaining such a small establishment. Grade 1 was for a roll of 9-20, Grade 2 was 21 to 35. At this period, Grade 7 was the rating given to schools of more than 500.
[59] George Penlington was born in Akaroa in 1865, educated at the local school and received his training with the Public Works Department before his appointment to the NCEB in 1900. George Penlington, Obituary, *NZIA Journal*, vol.11, no.4, October 1932, p.92.

This is not to say that the latter individuals immediately began to forge specific Canterbury solutions to local problems; there is no doubt that they would have had direct or indirect exposure to British principles and models. However, the large number of distinctive wooden schools and their associated teacher residences was certainly a local response to patterns of population distribution, land use and resource availability that differed from British conditions.

With the abolition of the North Canterbury Education Board in 1916, the new Canterbury Education Board now found itself responsible for the maintenance of 376 schools.[60] Over the period of its life from 1916 until 1989, the board would also face the considerable challenges arising from external factors such as dealing with the issues arising from the effects of two world wars and a major depression. However the effect of changes in social expectations and a revolution in teaching methodology and the philosophy which underpinned it, would also have a lasting effect on the nature of the buildings provided for Canterbury children over the next three-quarters of a century.

[60] *CEB Annual Report*, 1920. A table showing comparative figures from 1880 to 1920 was published on p. 4 of this document.

Chapter Two. Adaptation.

The *Education Act of 1877* may have enshrined the ideals that primary education should be secular, free and compulsory, but on another level it could be seen as a weak compromise that failed to create an administrative framework capable of providing the firm direction needed by the young colony. Provincial government had ended in 1876, but the influence of regionalism lingered and, in recognition of this, the legislation created a system with three tiers: the Department of Education in Wellington, the education boards based in the major provincial cities and towns and, finally, locally-elected committees for each school district. The committees had real powers; they had influence on the boards in the matter of the appointment and dismissal of teachers, it was their decision as to whether they would invoke the Act's compulsory attendance sanction, and they also elected the boards. The boards were responsible for spending Departmental grants on buildings and salaries, and could appoint teachers and their own inspectors. Department funding was, in turn, derived from appropriations from central government revenue.[1]

After some experience working under the 1877 legislation, there was a developing attitude on the part of government bureaucrats and successive Ministers of Education that the boards were frustrating the development of good governance in that they were largely unaccountable for the way in which they spent government money. In the twentieth century this tension was to continue with central government seeking to restrict, or in the ultimate, to terminate the influence of the provincially-based boards. In 1901 the Department ceased to pay them an annual sum for new buildings based on the boards' projections of what would be required in the coming year. Instead each new project had to be specifically approved, a change that went a long way to provide the Department with the power to have a direct influence over the boards' building policies. In the same year a unified colonial teachers' salary scale was adopted. Later, as a result of the 1914 Education Act, the evaluation of teacher effectiveness was carried out by an inspectorate that was administered by the Department rather than by individual boards. Yet the new legislation stopped short of removing the boards altogether, a failure which indicated the degree of latent provincialism that still existed in New Zealand society a generation after 1876.

[1] For details of the 1877 Education Act, see A.G.Butchers, *History of Education in Canterbury,* Canterbury Education Board, Christchurch, 1953, pp.57-66.

Instead there was a reduction in the number of boards from thirteen to nine, with the Canterbury region seeing the biggest change in that the North Canterbury, South Canterbury, Westland and Grey Boards were consolidated into the new Canterbury Education Board, (the CEB), based in Christchurch.[2]

From 1916, the CEB was responsible for the central South Island or more specifically the West Coast from Jacksons Bay to the Fox River, and to the east of the Southern Alps, from the Waitaki River to the Clarence.[3] Until 1930, the Chatham Islands were also part of the Board's responsibility.[4] In the CEB's inaugural annual report to the Minister of Education, it was noted somewhat acerbically, that, 'As regards to the North Canterbury District, the amalgamation will not, generally speaking, be beneficial', although it was acknowledged that South Canterbury was 'in many ways a model educational district… efficiently and economically administered.'[5] The implication was clear; it was expected that the West Coast would be a drain on the resources of the enlarged board. It is true that the challenges and problems associated with the provision of adequate educational infrastructure on the West Coast were very different, and for this reason, this issue will be assessed separately in Chapter Ten.

Certainly the former South Canterbury Board brought a substantial dowry to the new union. Of the four constituent parts of the new CEB, it was the only one that could offer a financial surplus. The Grey and Westland boards had overspent by more than £1700 and helped to create a situation that meant that the CEB started its life running a deficit. The fact that the former North Canterbury Board itself had overspent its site account by £1809, was not the subject of comment in the first annual report, presumably because this was held to be a sign of prudent insurance that land for new schools should be available well before it was needed.[6] The result of the deficit was that the new board was forced to appeal to the Department for an advance on the next grant, although it was noted in the 1916 Annual Report, that 'the Minister has not yet seen his way to accede to the request.'[7]

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[2] The tension between the regional and central bureaucracies is well covered by Leicester Webb, *The Control of Education in New Zealand*, NZCER, Wellington, 1937, pp. 55-92.
[3] On the West Coast, the area north of the Fox River including Westport remained as the responsibility of the Nelson Education Board. See John Nimmo, (ed), A *Short History of New Zealand Education Boards,* New Zealand Education Boards' Association, Wellington, 1989, p.68.
[4] *CEB Annual Report,* 1930*,* p.4
[5] *CEB Annual Report,* 1916, p.2
[6] Ibid., p.4
[7] Ibid., p.2

In 1917, in recognition of its increased workload, the CEB took the opportunity to move from its cramped quarters in the Normal School into a new building in Oxford Terrace. On October 3, Harry Ell, the member for Christchurch South, queried this action when he asked a parliamentary question in which he raised the issue of Board spending that was 'sapping the money that ought to be used to provide accommodation' for primary schools, specifically, Beckenham, a school in his constituency. The Minister of Education, the Hon. Mr Hanan, readily seized this opportunity to highlight the irresponsibility of the Board and stated that he presumed that Ell was referring to the new CEB offices, and claimed that the matter had 'been the subject of correspondence' in which he had 'strongly criticised the Board's action' which he described as 'very unwise.'[8] Less controversially, the Board also moved to rationalise its resources by building a workshop in Moorhouse Avenue and installing machinery capable of making school furniture and it was also decided to maintain the workshops in Timaru and Greymouth to provide local repair and even construction capacity. The co-ordination of these resources was to give added flexibility to the CEB's capacity to complete buildings in a timely and cost effective manner. For example when a teacher's residence was required for Rokeby, near Rakaia, the workshop in Christchurch supplied the materials and Board staff based in Timaru carried out the erection.[9] However, in the latter years of the war, and immediately after it, the Board's building and maintenance policies were seriously inhibited by inflation. For example in 1917, it was observed that 'Owing to the high cost of painting material, the Board is carrying out painting of buildings only in urgent cases,' and in 1918, this complaint was repeated.[10] The concern was justified; a steep increase in the price of paint was only one symptom of a wider problem as over the two years 1917 and 1918, the general price level had risen an aggregate 21.9 per cent.[11] There was however a contemporary suspicion that the Board was not above using the shortage of materials as an excuse for lack of action. In May 1920, the *Ashburton Guardian* reported that a Rokeby residents' deputation to the CEB to request an urgent start to their promised school building was successful only because the Board's expected 'objection that cement could not be obtained' was trumped when a member of the deputation revealed that he had purchased a supply of the material and was prepared to make it available to the builders immediately.[12]

[8] *NZPD,* vol.180, 1917, pp. 581-582.
[9] CEB Minutes, 1920-21, p.64.
[10] *CEB Annual Report*, *1917*, p.3 & *1918*, p.3.
[11] See the Reserve Bank of New Zealand Inflation Calculator, www.rbnz.govt.nz
[12] *AG,* 10 May, 1920.

At the same time the Board was faced with continuing the pre-1916 policy of *ad hoc* modifications to older buildings that were clearly showing their age, not only in the sense of requiring maintenance, but because facilities that were acceptable to Victorian and even Edwardian society were now seen as inappropriate. Representative examples include the following noted from the CEB's Building Committee's minutes. On 5 July, 1918, approval was given for the removal of Mountfort's gallery seating at Christchurch East, on 7 November, the Board agreed to pay for the installation of 'three small skylights' at Woolston, and on 6 December, Richmond School's application for the removal of floor grading and for the insertion of a window in the South West gable upstairs, as well as 'large vent windows' to improve ventilation and light in the corridor, were all approved.[13]

In the early 1920s, the need to replace older inner city schools was recognised and acted on. George Penlington responded with a series of brick buildings, some single level, but in an expansion of his pre-war repertoire, three double storey blocks were completed. Phillipstown was a side school of Christchurch East and limited by its size and condition to the extent that it did not have the capacity to cater for all those children who lived in the densely occupied industrial housing area that surrounded it. In 1919, an Inspector's Report agreed that the old wooden structure was substandard.

> With the exception of one room, the present building, on account of age, is hardly fit for its purpose. Of the 361 pupils… 95 have to be accommodated in a temporary shed not altogether waterproof. The floors of some of the rooms are none too safe, while the only office for the headmistress is part of a draughty passage.[14]

Phillipstown was granted the status of a full primary school and Penlington designed an elegant two-storey structure comprising nine classrooms, each of which was 24 by 26 feet. The block also contained cloakrooms, offices and an entrance lobby, the latter articulated by a portico, which, by virtue of its four supporting columns, provided a classical dimension and an impressive street frontage. The facade was embellished by the use of brick detail such as the segmental circular arches built with gauged red bricks over the doors within the portico and the lintels over the rectangular windows. The distinctive curved and stepped gables exhibited a Dutch dimension **(Fig.10),** although in the local context can perhaps be traced more directly to

[13] CEB Minutes, Building Committee Minutes, 1918-19, pp.106, 244 & 298.
[14] School Histories, ANZC, CH210, p 362.

Frederick Strouts' Ivey Hall, the School of Agriculture at Lincoln, built in 1878.[15] However, the overall design also revealed a willingness to move on from pre-war attitudes and technology in a genuine attempt to make the new block more functional in terms of better teaching and learning conditions. The corridors at both levels ran to the south of the classrooms allowing the latter the full benefit of the northern sun, and the specified steel window joinery allowed pivot mounted lights which presented the possibility of efficient natural ventilation.[16] The clean roofline, uncluttered by chimneys, was an indication that open fireplaces had been superseded by a central heating system based on circulating hot water fired by a centralised boiler.[17] The school, completed in 1922, was so well built, that a structural report commissioned after the Inangahua earthquake in 1968, concluded that the 'foundations were still in good condition' and were showing 'only slight settlement,' that the timber flooring, for which Penlington had specified red pine (rimu), was showing no dampness or rot and that the jarrah plates and sleepers and heart rimu rafters had been similarly effective in maintaining the building's structural integrity.[18]

By the end of 1921, all board architects in the Dominion found their ability to design buildings more tightly circumscribed with the promulgation of the first national school building code.[19] Until this date, the Departmental Architect had influenced boards' building policies, albeit in a negative way, by rejecting or amending plans that had been seen as unsatisfactory on grounds of design and/or cost. The idea of exerting this control by drawing up a set of enforceable standards could variously be seen as being more transparent and more efficient, or simply another initiative in the on-going central government determination to chip away at board independence. However, the process was certainly not rushed; the development of the code had been foreshadowed by a statement in 1917 when it was noted that standardisation of school construction was being considered.[20] This stance was justified by reference to the unsatisfactory nature of many existing buildings that were expensive to remedy, particularly those constructed

[15] Photographic evidence from Peter Shaw, *A History of New Zealand Architecture,* Hodder Moa Beckett, Auckland, 1997, p.36.
[16] ANZC, CAMQ, 3008, box 9, and Phillipstown, ANZC, CAMQ, 3253, box 230, Folder 1, RS/228.
[17] However this was not the first Canterbury school to be heated in this way. For example, Penlington's brick single storey block at Central New Brighton, built in 1915, featured a similar system. See the specifications in ANZC, CAMQ, CH662, 3008, box 5.
[18] Report to the CEB from the District Commissioner of Works 5/9/68, Building Survey Files, Christchurch Phillipstown School, Nursery Road, 1968-72, ANZC, CAMC, box 1, reference 53. However the report also noted that it would be uneconomic to bring the building up to contemporary standards of reinforcement against potential earthquake damage; demolition eventually followed in 1979.
[19] Building codes have been aptly defined as being 'based on the decisions of informed citizenry and enforced by responsible agencies: they exist for reasons of health and safety: they are the application of knowledge born of observation, experience, testing and consensus.' Uline p.448.
[20] *AJHR,* 1917, E-1, p.12.

from brick. It was also acknowledged that classroom accommodation should be 'hygienically in conformity with well-established principles' and that failure to observe this requirement could have a negative effect on children's health.[21] However, before the code was published, individual boards were given the opportunity to submit their views on the matters of satisfactory lighting, ventilation and sanitation. To ensure that new buildings were educationally appropriate, Senior Inspectors of Schools, since 1914 agents of the Department rather than the boards, were to approve all plans.[22] The code itself did not follow until 1921, and despite its four year gestation period, consisted merely of a fourteen-page booklet that started with general observations similar to those made in the 1917 statement, and was then divided into sections covering topics from general advice as to how to choose and lay out the school site, to specific regulations concerning the disposition and number of lavatories (which had to be detached from the main school building and were to be supplied to a strict formula, e.g. 'one seat for every 25 boys or part thereof in average attendance') and shelter sheds,[23] which were to be 'simple in design and construction.'[24]

In May 1923, the Minister of Education announced that each of the main centres would have the right to nominate one large school to be rebuilt up to the value of £10,000.[25] On 17 May, members of the CEB's Building Committee visited Christchurch West and Richmond to decide which of the two schools to nominate for immediate replacement.[26] Farr's sixty-year-old timber Gothic structure was judged to be more in need of replacement and George Penlington's design for the new block had a marked similarity to his school at Phillipstown.[27] A feature of his two-storey brick blocks of the 1920s was the more generous fenestration required to conform to the lighting and ventilation requirements of the 1921 code. These regulations demanded an area of window glass to classroom floor space to conform to a ratio of between 1:6 to 1:4. As any window sashes opening into corridors did not count in calculating the above ratios, it follows that a large part of the north-facing aspect of the classroom would be taken up by windows**.**

[21] Ibid.
[22] Ibid., p.13.
[23] Shelter sheds were simple structures, roofed and usually open to the north. They provided shelter from the elements for pupils who arrived at school before their classrooms were open, and could be used by pupils to wait for the bus after school. These sheds could be utilised as lunch facilities if necessary. Simple seating, such as wooden forms running along the interior walls, was generally provided.
[24] Building Standards for Primary Schools, 1921, ANZW, ACHX, 8731, W500, box 3.
[25] CEB Minutes, 17 May, 1923, p.729.
[26] Ibid.
[27] Although West Christchurch was by this date, a district high school, these institutions were still under the jurisdiction of the CEB, unlike high schools that were each established by an act of Parliament and were governed by their own boards that dealt directly with the Department of Education.

(Fig. 11) The Christchurch West design conformed to the stricture that 'cross ventilation is… the best means of providing an ample supply of fresh air' as the clerestory windows on the south side of the classrooms opened into a corridor which in turn was ventilated by windows in the exterior wall. **(Fig. 12)** The code also required that 'the top of the [classroom] window should be as near to the ceiling as possible to provide for effective ventilation' and to ensure that all of the room was naturally and effectively lit. For these reasons, 'hoods or excessively wide eaves are therefore objectionable.' Furthermore, the 'tops of all windows should be square, not arched.'[28] Contemporary photographic evidence confirms that these conditions were duly observed.[29]

Richmond School was the third of Penlington's two-storey blocks. Completed in 1925, it was smaller than those at Phillipstown and West Christchurch and lacked their symmetry because the northwest wing was truncated leaving space for extra classrooms if a future need for more accommodation arose. This building featured a facade that was less decorative than those of its two predecessors, the brick detailing was less imaginative and the simple gable lacked the frills of the other two schools**. (Fig. 13)** It is interesting to speculate as to the factors that influenced the architect in the basic design of the three two-storey blocks. They are plainer than the majority of English board schools that featured in the professional literature to which he may have had access and it may be that Penlington looked no further than Samuel Hurst Seager's Christchurch Technical College, which had been completed in 1907. This design showed no Gothic or Queen Anne influence; instead the city's foremost architect of the period had chosen a tightly controlled classical brick structure with a broken central pediment, a portico and regularly spaced plainly articulated rectangular windows.[30]

[28] Building Standards for Primary Schools, 1921, p. 9. It is significant that this statement of best practice made no mention of built-in aids to ventilation, such as Tobin tubes and roof top turrets, which had been a feature of nineteenth and early twentieth century school buildings. Kirsten Orr finds evidence that the Australian authorities had, by the mid-1920s, also concluded that such contrivances were ineffective and that 'windows and cross currents' were the only means of efficient ventilation. See her article,W.E.Kemp's School Buildings,1880-1896: Seed Germ of the Australian architecture of the future? *Fabrications, the Journal of the Society of Architectural Historians, Australia and New Zealand,* vol.19: no.1, June 2009, p.111.

[29] The similarity between Phillipstown, planned before the 1921 code, and the Christchurch West school, designed after it, is evidence that the promulgation of the code would have contained few surprises for board architects who would have been well aware of the contemporary thinking of the Departmental Architect based on his acceptance or rejection of specific submissions before the code was published.

[30] See Christchurch City Libraries, Photo CD 9, IMG0008.

The preference for brick was also a feature of smaller projects when extra rooms were being provided in city schools.[31] For example at Waimairi, the original structure was a two-room brick block built in 1914 and additional accommodation was added in this material after the war, specifically two classrooms in 1924, and a third in 1926.[32] The newer classrooms were eventually added in an almost seamless continuation of Penlington's pre-war style although the later additions can be discerned by the increased area of fenestration required by the 1921 code. **(Fig. 14)**

However when an entirely new school was needed, the Department was becoming less keen to approve construction in permanent materials. When Papanui School was relocated because the existing site was too small for further development, the School Committee took it for granted that their school, on the new site between Winters and Tuttons Roads (the latter was later renamed Cranford Street), would be a modern brick structure. However the Departmental officials remained obdurate in their decision that the building should be wooden. For two years the three-sided argument between the School Committee, the CEB and the Department of Education continued to fester, the tension unrelieved by a visit from the Minister, the Hon. C.J. Parr, and the strenuous efforts of the local MP, David Buddo, to broker a deal. Finally the School Committee surrendered, and in a letter to the Board on July 27, 1925, agreed to a timber building 'on the condition that it started immediately as they dread having to use the old building for another winter'.[33] It would be easy to characterise this episode as an example of the powerful Department bent on making short term economies, overriding the wishes of the local school committee and its board. However this dispute should be seen in the context of a gradual change as Departmental thinking hardened into the adoption of a new policy. In 1925, in his annual report, the Minister repeated the observation first made eight years earlier, that the continuing need to remodel the existing stock of classrooms to keep up with 'modern educational and hygienic requirements was much more easily performed on wooden buildings than those constructed of permanent materials.' In the same statement, remodelling was defined as the subdivision of long rooms, the extension of others, the upgrading of lighting and ventilation

[31] When the new single storey school at Opawa was constructed of this material, even the shelter shed was built from brick. ANZC, CAMQ, CH662, box 5da

[32] However the process of obtaining a grant for the latter addition was not a smooth one. Penlington had to suffer the indignity of the Departmental Architect reconfiguring his design although the former's no doubt gleeful response was that the modification 'could not be entertained as it would bring the back portion [of the addition] over the boundary line, which in this case is the railway'. ANZC, CAAA, CH45, 2261, box19.

[33] For the correspondence and other documentation relating to this issue, see ANZC, CAAA, CH45, 2261, box 16f, Part 1.

systems and the provision of teacher rooms.[34] This was perhaps an implicit recognition that even new work might have a life expectancy of only a generation or two rather than the Victorian assumption that they were building for posterity. Yet the initial reluctance of the Papanui School Committee to agree to timber construction perhaps indicates that Departmental policy had outrun more conservative public opinion. Robin Skinner has seen the demand for brick and stone as essentially a nineteenth-century attitude. He argues that 'Timber signified a provisional settlement and… an impermanent, second rate community. Many people continued to associate wood with poverty, transience, decay and conflagration.'[35] However, the nature of the settlement of Papanui as a working-class community, the older eastern part almost entirely composed of small wooden houses, did not make it any less likely that its citizens would easily agree to being fobbed off with cheaper school buildings which they may have seen as evidence of a devalued form of education being provided for local children. This attitude was probably compounded by the knowledge that the CEB had considered relegating the existing Papanui School to the status of a side school under the aegis of the faster growing Waimairi School in the more affluent western portion of the district, a feeling undoubtedly reinforced as the latter's new classrooms were added in the desirable brick.[36]

However, once approved, the Papanui project moved quickly. By December 1925, the CEB had already invoiced the Department for £1000 for the first progress payment, and by July 1926, the school was completed, the relative speed of the operation being at least partially due to the use of the Board's own construction team, thus saving the time needed to call for and approve tenders.[37] Penlington's design provided a single storey L shaped layout of seven classrooms, with two of them connected by folding doors to provide a flexible space for the infant department; the latter configuration having been clearly sanctioned by the 1921 Building Code.[38] The administration offices were located in the corner of the structure but the benefits of the northern aspect were maximised and the line softened by chamfering the right angle to 45 degrees that also allowed the creation of a distinctive formal entrance. **(Fig. 15)** As in his other

[34] *AJHR,* 1925, E-1, p.6.
[35] Robin Skinner, Understanding the Risk: Seismicity and Architectural Development in Nineteenth Century New Zealand, *Fabrications, The Journal of the Society of Architectural Historians, Australia and New Zealand,* vol.19, no.1, June 2009, p.130.
[36] The Board had discussed this possibility as early as 1918. See the CEB Minutes, 6 December, 1918, pp. 295-296.
[37] The Department agreed with this approach. In its annual report printed in *AJHR* in 1925, E-1, p.7, it was noted with approval, that six of the nine boards 'widely employ their own staffs'.
[38] Building Standards for Primary Schools, 1921, p.11.

schools of this era, the architect had positioned the access corridor along the south-facing wall, thus opening up the classrooms to the benefits of the sun.[39]

The concern of the Department and boards to provide well ventilated, adequately lit and sunny classrooms was by now well recognised as an important factor in the design of new and remodelled schools. As with many developments in New Zealand educational architecture, the seeds of the change had been nurtured overseas, in this case as a result of medical professionals seeking a new approach to combat the curse of tuberculosis, the disease formerly known as consumption. Anne-Marie Châtelet has reviewed the process whereby a 'forest school' was established at Charlottenberg, in Germany, in 1904, to test the theory that fresh air and sunshine might help to cure children showing symptoms of tuberculosis.[40] The results were thought so promising that it was considered that educating children in natural conditions might act as a prophylactic against, as well as cure for the disease, and the cause of such 'open-air schools' came to exert some influence in Europe and North America before World War One. Moreover, Marta Gutman claims that even by the end of the nineteenth century, there was a developing and more general belief that 'contact with nature would save children from the problems of the industrial city and offer them healthier lives physically as well as mentally.'[41]

There was little official comment made in New Zealand in the first decade of the twentieth century about classroom hygiene, in fact, in 1902, the Department's view as expressed in its annual report was almost smug; 'The lighting of schools is generally well provided for,' although it was noted that light 'should be provided from one side only,' a shift from the earlier view that this should be only from the south.[42] The same comment was reproduced a year later,[43] but no further reference to classroom lighting or ventilation was made until 1915. However in the interim, overseas views were filtering into the new Dominion's consciousness. A good example of this was the submission made by Walter Mills to the Cohen Commission in 1912, a body charged with writing a report on the state of New Zealand education and making recommendations which would act as the basis for new legislation, the *Education Act of 1914*.[44]

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[39] ANZC, CAAA, series 2261, CH45, box 16f, record 7/8 part 1.
[40] Anne-Marie Châtelet, A Breath of Fresh Air, in Marta Gutman and Ning Coninck, (eds), *Designing Modern Childhoods, History, Space and the Material Culture of Children,* Rutgers University Press, New Brunswick, 2008, pp.107-127.
[41] Ibid, p.8.
[42] *AJHR*, 1902, E-1, p.xiv.
[43] *AJHR,* 1903, E-1, p.xvi.
[44] The precise terms of reference for the Commission, are reproduced in Ian Cumming, *Glorious Enterprise, The History of the Auckland Education Board,* Whitcombe & Tombs, Christchurch, 1959, p.386. To ensure that location

Mills, an American, and a self-styled 'social evangelist,' had a diverse range of interests, one of which was the advantage of promoting a constant supply of fresh air into classrooms in the interests of pupil health.[45] He claimed that not only was this practice socially beneficial, it was also relatively cheap to achieve. One of his examples referred to Chicago, where 'some of our central schools have arranged to take the windows practically entirely out and to put out the fires'. The apparent result of this architectural de-constructionism was that 'children [were] begging for an opportunity to attend such institutions.'[46] Mills' submission had no direct effect on the subsequent legislation which in any case was more concerned to redefine the balance of power between the Department and the boards,[47] yet by 1915, the Department had 'discovered' the issue of the quality of classroom working conditions.

> The Medical Inspectors report on the school buildings in respect of lighting, heating, ventilation, cleanliness etc., and have been able to suggest many improvements where little or no expense is involved. emphasis is placed on the value of fresh-air, open-air teaching being especially recommended.[48]

It is hard to assign any particular trigger to explain the Department's apparently sudden interest in this issue. Erik Olssen may well be correct in claiming that the heightened concern with the physical well-being of pupils was a by-product of intense Imperial patriotism and was linked to the notion that 'The military capacity of the Empire demanded healthy boys… [and] mothers.'[49] The same writer has underlined the importance of the Plunket Society's agenda of 'the teaching of hygiene… with regard to proper amount of exercise, exposure to sunlight, [and] having the windows open at night.'[50] It is true that Truby King, the founder of the Plunket Society was more directly concerned with the education of mothers and the way in which they reared babies, but such was the pervasive influence of the doctor later termed 'the media idol of his generation,'[51] that it is not difficult to see the acceptance of his ideas spreading from the nursery to the schoolroom especially when Plunket eventually acquired the oversight of eighty per cent of

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was not a barrier to those who wished to make submissions, the Commission was itinerant and visited the major centres.

[45] Although Mills spent only a relatively brief period in New Zealand (1911-14), he enjoyed wide influence. For example, he played a leading role in the formation of the United Labour party. See Erik Olssen, Mills, Walter Thomas-Biography from *The Dictionary of New Zealand Biography,* www.tera.govt.nz/en/biographies/3m54

[46] *AJHR, Session 2,* 1912, E-1, p. 649.

[47] The major provisions of the *1914 Education Act*, are summarised in Webb, *The Control of Education in New Zealand*, p.116-118.

[48] *AJHR,* 1915, E-1, p.17.

[49] Erik Olssen, Truby King and the Plunket Society, *NZJH,* The University of Auckland, Vol.15 No.1, April 1981, p.9.

[50] Truby King, quoted by Olssen, ibid.

[51] The term used by Phillipa Mein Smith in Truby King in Australia: A Revisionist View of Reduced Infant Mortality, *NZJH,* The University of Auckland, vol.22, no 1, April 1988, p.28

European babies in the Dominion.[52] In 1919, Doctor Elizabeth Gunn developed the Health Camp movement based on the notion that exposure to sun and air in association with a healthy diet and exercise could be used to build up sickly children, many of whom came from under-privileged urban backgrounds.[53] In 1912, with the establishment of the School Medical Service under the wing of the Department of Education, doctors had acquired the ability to directly influence wider Departmental policy; in 1921, this Service was re-allocated to the Department of Health and a dedicated School Hygiene Division was set up in the same year.[54] Medical Officers employed by the Department of Health were gradually appointed in each education board district, one of their functions being a quasi-inspectorial role in local schools on sanitary matters while they were also prepared to advise teachers, school committees and boards on appropriate measures to improve conditions.

It might be supposed that many of the above concerns would not be relevant for children living a presumably healthy country life, yet even if this were true it did not necessarily apply to the schools they attended; certainly the NZEI felt that a two tier system was developing. In April 1920, the president of the Southland branch lambasted the state of rural school buildings throughout the country. He described them as 'gloomy and dismal and out of keeping with the spirit of efficiency and progress of the age.'[55] There are examples to illustrate this contention in a Canterbury context. At a very basic level an unlined 'iron' structure would be provided, as at Parnassus, a one teacher school. This building served the local community from 1918-23 until it was finally replaced with a wooden school.[56] Even when new buildings were constructed in rural areas, it appears that materials and appointments were second-rate in comparison to the expectations in Christchurch. After the old wooden building at Killinchy had been demolished, a new school was built in 1925; the detailed instructions for the building of the chimneys indicated that the 'hot water apparatus' now becoming the standard heating method in towns, was not yet an option in country districts. The plan was the basic rectangular shape used for most country schools in the 1920s. The original blueprint showed a space of 44 x 27 feet 6 inches subdivided into two classrooms with a six foot wide corridor partitioned off at one end, a space that was further subdivided into a porch and a small teachers' room. (**Fig. 16)** The cost estimate of £1138

[52] Margaret Tennant, Children's Health Camps in New Zealand: The Making of a Movement, 1919-1940, *Social History of Medicine,* vol. 9, April 1996, p.71.
[53] Ibid., p.76.
[54] Ibid., p.74.
[55] *National Education,* April 1, 1920, p.89
[56] ANZC, CH210, p.355. 'Iron' schools were an early form of prefabrication. The corrugated iron cladding could be easily removed and reused elsewhere. See Chapter 6 for a fuller discussion of this type of structure.

was reckoned to be unaffordable by the Department but agreement was finally reached when the Board offered to carve 50 square feet off the original 1200 square feet, as well as to construct the 'new outer offices' (i.e. lavatories) and the shelter shed, from reusable material from the old school due to be demolished. The paper trail tracing these negotiations went all the way to the Minister of Education, whose scrawled comment on an intra-departmental memo indicated that the Department should pay a maximum of £1000, finally softened to the extent that with the savings offered, the new contract price of £1082 was deemed acceptable.[57] What may seem to be miserly cheese paring on the part of the Department, should, however, be seen in the context of its uneasy relationship with the CEB.

The Department of Education had been unhappy with what it regarded as the Canterbury Board's cavalier attitude to public money, and the wrangle over the new two-roomed school at Hook, near Waimate, is a good example of this. Penlington's design exceeded the Department's guideline of 12 square feet per pupil,[58] but the Departmental letter of 15 March,1920 refusing an increase in the grant to pay for the extra floor space, attracted only the terse reply from the architect, on 27 March, that, as the project had been started, it was too late to change. This led to a standoff that was resolved only on 14 July when the Department agreed to pay the extra amount so that the job could be finished. However the Director of Education's letter of February 2, 1921, made the Department's official displeasure quite explicit by clawing back the effective overpayment of £129 by deducting this sum from that already granted for the new Christchurch West District High School.[59]

The CEB had then moved to formally discipline its wayward architect.[60] In June 1921, George Penlington had received an official letter from the Board warning that it was 'not satisfied with the manner in which your department is conducted.' Several deficiencies were listed including poor cost estimates, delay in producing plans and specifications and even the omission of various items from plans. Furthermore, Penlington was warned that unless there was an improvement,

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[57] The drawings for this school are in ANZC, CAMQ, 3008, CH662, box 4m,. while the correspondence relating to this saga is included in ANZC, CAAA, 2261, CH5, box 4/e, record 7/, Part 1.

[58] This limit had been recognised by the Department of Education since 1905, Ian Cumming, *Glorious Enterprise,* p.438. However during World War I, the Department reverted to 10 square feet per pupil as an economy measure. See CEB Minutes, 6 December, 1918, p.298.

[59] ANZC, CAMQ, 2261, CH690, box 14 record 7/8 Part 1.

[60] It is hard to escape the suspicion that there was an element of scapegoating involved in this action. The Government auditor was to tag the CEB accounts for the year ended 31 December ,1922, as being characterised by the large amounts charged by elected Board members, for travelling expenses and allowances that were 'unreasonable and exorbitant.' CEB Minutes, 1924, Finance Committee Report, 4 April, 1924, p.1007.

'the Board will be compelled to take certain steps to obtain the desired reform.'[61] Later, in September 1921, the Board's Building Committee minuted another warning to Penlington that 'no material of any description shall be purchased without a written order, a duplicate copy to be immediately forwarded to the Secretary.'[62] In the former's defence it should be noted that his small department was faced with a heavy workload at this time.[63] In 1921, the following projects were noted in the *CEB Annual Report*: a new school was erected at Charwell Forks, the two-storey block at Phillipstown was begun and technical schools at Greymouth and Timaru were completed. 'Large works' (major additions and/or refurbishment) were completed at Allenton, Ealing, Heathcote, Linwood, Methven and Waimataitai as well as teacher housing at Hilton, Rokeby and Rotherham.[64]

A new development that would consume more time than any of these projects was the initial planning for the CEB's major inter-war undertaking, the Christchurch Teachers' College. The size of this project was such that Penlington felt that his department could not cope with the work. He had formally advised the Normal School Committee of the CEB of his recommendation that the design of the new building should be put out to tender, pleading that the other duties expected of him, for example 'callers requiring attention', justified his stance. Penlington was asked to attend the Committee meeting and was reprimanded verbally when it was 'impressed upon him' that the problems he raised were simply a symptom of poor management on his part. Later, and more formally, he was directed by letter that his department was instructed to prepare the plans and on completion to 'proceed to Wellington… with the purpose of conferring with the Department's officers and obtaining finality as regards the plans'.[65]

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[61] CEB Minutes, 1 June, 1921, copy of letter inserted between pages 177-178.
[62] Ibid., 9 September, p. 274.
[63] Apart from Penlington himself, the department included two draughtsmen, but no secretarial or administrative support. This was at least partially rectified with the appointment of a Typiste-Clerk in 1923. See *AJHR,* 1924, E-2, p.13. It should also be noted that the architect was often burdened with seemingly trivial and time-consuming duties only peripherally associated with his role as a designer of Board schools. For example in August 1924, the Buildings Committee directed him to report on the condition of the curtains and blinds at Addington School as well as to give urgent attention to the flagpole at the same school. CEB Minutes, 13 August, 1924, p.1096.
[64] *CEB Annual Report,* 1921, p. 4.
[65] CEB Minutes: Normal School Committee Minutes, 21 September, 1923, pp. 834-835. The letter was signed by Ernest Andrews, chairman of the Normal School Committee, the Board's standing committee in charge of teacher training. At this time standing committees did virtually all the Board's business. These committees each had a membership of six of the twelve board members, including the Board chairman who was an *ex officio* member of each. The monthly meetings of the full board tended to receive and adopt the reports of the sub committees with very little amendment.

Despite his reluctance, Penlington's final design was a worthy addition to the townscape in an area hitherto dominated by the Normal School. He abandoned his work in the simple classical idiom as evidenced at Phillipstown, Richmond and West Christchurch and returned to the Gothic Revival of the previous century. It is highly likely that this was a response to Farr's Normal School diagonally opposite to the chosen site for the new building that had street frontages on Peterborough and Montreal Streets. Furthermore, Armson's Venetian Gothic Christchurch Girls' High School, on the southern boundary of Cranmer Square, built in 1880, enhanced the influence of the style used for educational institutions in the western area of the CBD between Armagh and Peterborough Streets and must have made it even more difficult for the Victorian mould to be broken. Penlington chose to replicate not only the style but also the fabric of the Normal School: both buildings featured irregularly shaped basalt with limestone facings although the structure of the later building was brick and the local stone was used only as a veneer on the external surfaces observable from the street**.** Fifty years before, Farr had used the corner of Kilmore and Montreal Streets to feature an eye-catching octagonal room, surmounted by a spire, to visually anchor the southern and western wings of the Normal School. The nearest entrance was slightly recessed from the Kilmore Street facade, perhaps deliberately discreet, as this part of the building was for the use of the Board's bureaucrats. Penlington, however, employed the corner of Peterborough and Montreal Street to establish a grand entrance featuring two crenelated towers that flanked a taller gable, an oriole window at the first floor level and a large Gothic portal that provided the only obvious off-street access to the building. **(Fig.17).** The basis of this design was the chamfering of the corner right angle in the same way as was featured at Papanui School. The aspect presented from the eastern side of the Peterborough/Montreal Street intersection was an imposing vision of symmetry and solidity, an impressive essay in Collegiate Gothic.[66]

There is no suggestion in the CEB files as to the origin of the design of the corner entrance that so dominates Penlington's building. He had never visited Britain or the USA; in fact there is no evidence that he ever left New Zealand.[67] However it is highly likely he would have had access to images and perhaps even plans of significant British and American educational architecture via professional magazines.[68] *The Building News* of 18 February, 1888, included a lithograph of

[66] The drawings for the Teachers' College are held at ANZC, CAMQ, CH564, RS/064, Folder 1.
[67] Peter Penlington, The Penlington Family, n.pag., an unpublished essay, kindly made available by the author.
[68] Samuel Hurst Seager had produced several bound volumes of selections of designs culled from British building magazines and Tiltman's plan was included in Places of Instruction, n.pag, It is highly likely that copies of Seager's compilations would have been held at the CEB's architectural offices.

A.H Tiltman's entry in a Royal Academy Competition for a College of Forty Students, which is uncannily similar, especially when it is noted that an earlier undated blueprint of the Christchurch Teachers' College featured towers topped with cones, an embellishment that Tiltman had included in his design. However it is equally likely that the direct model could have been the brand of Collegiate Gothic used by American practitioners who had, in their turn, been heavily influenced by English examples. Richard Dober claims that American college architecture was 'revolutionised' after John Stewardson visited St John's College, Cambridge in 1895, while in the process of designing the University of Pennsylvania dormitories, and that he and his partner Walter Cope, immediately stopped their drawings to start again based on the heady experience of what they had seen.[69] Certainly another project executed by this partnership, the Administration Building, Washington University of St Louis, shows many of the features, including the crenelated towers, the Gothic portal and the oriole windows used in the Peterborough Street building, albeit that the former is on a much grander scale.[70] Again the relevant architectural magazines would have been available, if not in the CEB office, at least in the local NZIA library.[71] It should also not be overlooked that the CEB's delineator, David Hutton, had had experience working in the office of Benjamin Mountfort's son Cyril, who, like his father specialised in design based on Gothic Revival.[72]

The foundation stone was laid on 8 September, 1924, but it was not until mid-1931 that the southern and western wings were complemented with a smaller flat-roofed northern wing which included better services for the college's female students, specifically showers, dressing rooms, cloakrooms and an adequate number of toilets.[73] Obtaining a grant for this last stage had proved very difficult, as the Department was reluctant to authorise extra spending on top of the £34,239 that the project had already cost, although the Director, T.B Strong, acknowledged the problem in an intra-departmental memo, when he noted the deficiencies in the existing building, for example the inadequate provision of lavatory facilities, only '4 closets for 200 women', and that

[69] Richard P Dober, *Campus Planning,* Rheinhold Publishing, New York, 1963, p.32.
[70] Photographic evidence from Charles Z Klauder & Herbert C Wise, *College Architecture in America and its part in the development of the campus,* Scribner, New York, 1929, p. 48.
[71] Penlington was an assiduous member of this organisation, eventually being conferred with a Fellowship.
[72] There is evidence that indicates that Hutton and Cyril Mountfort were working in the same practice in 1917. See the Card Index of the Architects' File, Visual Resources Unit, Art History and Theory Department, University of Canterbury.
[73] The new College had opened in late 1926 despite its only partial completion by this date; only the Peterborough street wing was then ready for occupation. W.J Fletcher, *A Sense of Community,* Christchurch College of Education, Christchurch, 2001, p.130.

the only wash basin for their use was down a flight of stairs in the boiler room.[74] Eventually, a powerful lobby group of local MPs assisted in convincing the Cabinet that the funds should be allocated.[75]

Small rural schools in the Canterbury district had traditionally been constructed from timber, and since the mid-1920s, this material had also featured in urban schools. The fact that the Teachers' College had been planned and built in expensive permanent materials showed that the CEB, with the approval of the Department and ultimately the Cabinet, believed that it was appropriate to make a statement that indicated the importance of teacher education. The choice of Gothic perhaps sent an unwitting message that this process was still dominated by a nineteenth-century outlook and that pedagogy had not moved on in the intervening fifty years. An interesting contrast can be made with the Dunedin Teachers' College that was completed in 1939 when Modernism had 'arrived' in New Zealand;[76] the building's two-storey horizontal structure featured a flat roof.[77] The design embodied European modernist principles inflected for local conditions as evidenced by the use of timber weatherboard cladding and presented an image that could be seen as a proclamation that teaching was a challenge to be confronted in a new machine age rather than a practice still straitjacketed by religious precepts and High Victorian moral certainty. Yet the interior design of the Christchurch building belied its exterior; for example some of the stairwells and landings were unmistakeably art-deco in expression. [78] **(Fig. 18)**

The Teachers' College was the last CEB building to be constructed from load bearing brick. The earthquakes centred in Murchison in 1929, and more particularly in Napier in February 1931, revealed the potential for large-scale disaster involving such structures. The first impression of eyewitnesses of the latter event was that, 'All the brick buildings have perished. Those of reinforced concrete or wood… escaped more lightly.' Unsupported brick gables that had toppled into the street were seen as testimony of 'the folly of architects including decorative material of

[74] Memo from T.B Strong to the Minister of Education, 17 June, 1929. ANZC, CAAA, 2261, box 117/c, Record No.7/21/Part 3. In this document, Strong's exasperation with Penlington's poor planning is made quite evident.
[75] Ibid.
[76] The building was designed for the Otago Education Board by Clifford Muir, Dip. Arch (Auckland University College), NZIA. His university qualification was unusual for board architects before the Second World War, and was possibly a reason for a contemporary judgment that he was 'ranked among the foremost school architects in New Zealand' and was commended for his 'progressive ideas.' Miller, p.102
[77] Ibid., plate facing p.81. Unfortunately the building was the victim of 'conflagration' which was an ever present danger for New Zealand's wooden buildings. The structure was destroyed on 3 September, 1968.
[78] However, the potential for any 'jazz age' levity was firmly supressed. The College 'institutionalised the separation of the sexes.' There were separate men's and women's entrances and common rooms, facilities which were 'as far apart as possible.' Fletcher, p.131.

this nature in their plans.'[79] The country's major newspapers carried dramatic photographic images of the devastation in the Hawke's Bay cities.[80] The Department of Education immediately required all boards to survey buildings that could be hazardous in the event of another major earthquake. This direction was acknowledged by the Building Committee as part of a minute noting that the CEB architect and 'an Engineer of the Public Works were to inspect all brick [school] buildings in Canterbury' and to carry out this task 'at the earliest possible date.'[81] Penlington, and Langbein, the local Public Works Department engineer, completed this assignment with amazing alacrity. By 24 March, they had visited thirty-nine Board schools, including those on the West Coast, and had checked forty-six 'at risk' buildings. Their report consisted largely of a brief individual analysis of each building with associated recommendations. For example, Lyttelton District High School, designed by W.B. Armson, constructed primarily of local stone and completed in 1874, was judged to be 'about the most defective school in the district' and required a long list of measures to improve its safety. These included requirements that the south wall should be 'heavily buttressed up to the centre of the top floor', the removal of the gablets over top floor windows which would then require reconstruction, the removal of the tower to roof level and the provision of an external staircase from the upper floor.[82]

The survey also gave Penlington a unique opportunity to assess the integrity of his own work. He noted proudly that Christchurch West District High School featured walls and partitions of reinforced concrete at ceiling level.' He was confident that rapid egress from the building in the event of an emergency would be accomplished as 'there are sufficient exit doors and they all open outwards'…[and] 'there are three large staircases with clear lower openings situated at the ends and angles of building' [sic]. Yet he was plainly concerned that further measures were required and recommended the installation of two external fire escapes and the securing of the gables.[83] Addington School, one of Penlington's first projects, completed in 1910, obviously caused him more anxiety. The recommended solution was the removal of the gables and

[79] Daily Telegraph Co. Ltd, *Hawke's Bay, "Before and After": The Great Earthquake of 1931,* Daily Telegraph, Napier, July 1931, pp.72-75.
[80] For example, Canterbury's leading newspaper, the *Press,* included double-page features of the damage on pages 7& 9, February, 1931. In retrospect these images look eerily similar to those that would become famous a decade later as a result of the London Blitz.
[81] CEB Minutes: Building Committee, 18 February, 1931, p.37.
[82] CEB Minutes: Report dated 23 March, 1931, and included in the Building Committee Minutes of 15 April, 1931, p.114.
[83] Ibid., p.113.

chimneys and the remodelling of the roof into a lower-profile hipped style in an attempt to tie the brick walls more securely into the structure.[84] (**Fig. 19)**

Penlington prefaced his report with a section in which he reflected on the lessons learned from the survey.[85] He noted that exit doors from buildings should be modified to ensure that they opened outwards and that there should be one such door for every two classrooms. The other two points must have been difficult conclusions for the architect to arrive at, because in advancing them he was effectively admitting that much of his design, the evidence of which existed in many of Canterbury's schoolyards, was based on principles that could seriously compromise the safety of the province's children and teachers in the event of a major local earthquake. First, he admitted that the use of unsupported brick gables above the plate-line was a 'mistake… as it is not always easy to firmly secure same.' Second, he recommended that 'in future, all large schools should be of the semi-detached type,' a description typically used of houses, 'built with a common or party wall between them… i.e. attached on one side.'[86] It is possible that he was referring to a building of the type he had designed for the new Spreydon West School in Lyttelton Street, in which two classrooms were included as a double unit separated by a cloakroom, all being accessed from a veranda running along the northern aspect of the structure.[87] However, this project was never executed; when the school opened in 1926, the only building was in the form of a linear configuration that consisted of four classrooms.[88]

Penlington had little chance to supervise the remedial measures he had recommended because at the monthly Board meeting of May 1931, at the age of sixty-five, he 'intimated his intention of retiring on superannuation' and tendered his resignation to take effect as from 31 July of that year. The architect had worked for the CEB, or its predecessor the NCEB, for an unbroken period of nearly thirty-two years and he was recognised with the standard gratuity for long serving senior employees of 'three months holiday on full pay.'[89]

George Penlington's career had, therefore, started as the pre-war designer of load-bearing brick schools in Christchurch and the larger provincial centres, a trend continued into the mid-1920s,

[84] Ibid., p.114.
[85] Ibid., p.109.
[86] John Fleming et al, *Penguin Dictionary of Architecture and Landscape Architecture,* Fifth edition, Penguin Books, London, 1999, p.520.
[87] ANZC, CAMQ, 3293, CH916, box 15 A/214/10.
[88] ANZC, CH210, pp.496-497. Photographic evidence of the executed structure is presented in West Spreydon School, *Honor Virtutis Praemium, A Brief History of West Spreydon School, 1926-76*, October, 1976, p.15.
[89] CEB Minutes, 22 May, 1931, p.175b.

but one which had ended with the rush to wood at the behest of a Departmental policy, originally driven by fiscal as well as wider policy imperatives, but given urgency and legitimacy by the natural disaster in Hawke's Bay at the beginning of the next decade. This summary of the post-World War One period is attractive in its simplicity but it tells only part of the story. During the 1920s, a small but articulate pressure group fought a skilled campaign based on a new philosophy of education which put the health of the child before any other consideration hitherto involved in the construction of that basic piece of educational infrastructure, the classroom. The way the Board responded to this challenge would have long-term effects on the Province's pupils, teachers and school designers and would ultimately pose questions for educational administrators throughout the Dominion.

Chapter Three. The open air revolution.

Under the relatively sober heading, 'Old and New,' Saturday morning readers of the *Press* on 5 July, 1924, were given a preview of a new building that had just been constructed at Fendalton School.[1] Although the classroom would not be formally opened until the end of the month, the headmaster, A.R (Ray) Blank, was keen to inform Christchurch readers of the completion of what had been a long campaign to build a 'new fresh air bungalow school.' The reporter saw the wider implications of this accomplishment.

> Fendalton will find in its school something to be proud of and will be able to point to it as the first of its type of school in the Dominion that was a a means of improving the lot of the children by enabling them to be taught in the open or as near as they could get to it without being deprived of shelter from the elements.

The reporter was duly impressed by the 'warmth and snugness' inside the new building despite the 'cold, bleak' and wet conditions outside. He was then led to the existing infant room where he was 'struck by all the draughts which blew across it', and was told that the room did not 'catch the sun until about 3 p.m. in the winter.' The infant class, when asked questions by their headmaster, then dutifully chorused 'general answers' about the shortcomings of their present accommodation and their united desire to move into the new classroom.

This incident is significant, not only because of the assertion that the building was the first of its type in New Zealand, a claim which was at best a half truth, but also for the skilful way in which Blank stage-managed an interview that he had probably initiated; a symptom of the successful manipulation of the media that the proponents of open-air teaching had used to drive their agenda. The reporter concluded the article by praising the architecture of the new room as being 'more in keeping with the residences of Fendalton than the present school buildings.' This must have seemed a rather curious statement to those who had walked or driven past the closed up structure which, with its shed-like doors and complete lack of fenestration to the northwest, must have seemed an unprepossessing addition to the Clyde Road schoolyard. (**Fig.20)** It was, however, the first physical evidence to Christchurch citizens of the revolution which was to influence the appearance and functioning of many of Canterbury's classrooms.

[1] *Press,* 5 July, 1924. All subsequent material in the first two paragraphs is based on this report.

The new room at Fendalton School was certainly revolutionary in the context of educational architecture in the greater Christchurch area in the early 1920s. Even the most modern urban schools built to the Department's Building Code of 1921 were constructed in brick and were configured in one or two storey blocks consisting of up to nine classrooms and incorporated administrative offices and storage facilities. The room at Fendalton was a simple detached wooden bungalow oriented to the northwest with a corrugated iron hipped roof. The dimensions of the classroom were 24 x 26 feet, with a stud height to a flat ceiling of 10 feet, and an attached shelter porch, 16 x 11 feet 6 inches. Each of the four elevations had the potential for direct external ventilation and the admission of natural light, most dramatically evidenced by the facility of sliding the four wooden doors on double tracks, two to each side, to completely expose the northwest aspect to the elements.[2] The northeast wall of the room was dominated by a large glazed unit of three rows of five lights, each being pivot hung so that they could be rotated through 90 degrees to a horizontal plane, thus controlling the amount of air to be admitted into the room. The principle of cross ventilation was ensured by the insertion of a row of clerestory windows on the southeast and southwest walls. It was envisaged that in the normal mode of operation the northwest doors would be open, letting in afternoon sun, thus providing direct heat and light to a room already warmed by the early morning sun admitted through the northeast windows. However in due deference to Christchurch winters, a fireplace was provided in the southwest corner. Only on days when a northwest wind was blowing would it be necessary to work with the sliding doors closed.[3]

The blackboard strip was fixed to the southeast wall below the clerestory windows, a situation that allowed pupils to work with the morning light coming from the left in the approved manner. However afternoon sun coming through the open doors could well have posed a problem of glare and it is interesting to note that one of the publicity photos provided by the Open Air Schools' League reveals that the students have turned their desks 90 degrees to the right and that they are working from a portable easel placed in front of the southwest wall. No curtains, blinds or awnings were provided in this prototype, an indication that the virtues of constant fresh air and the unfiltered rays of the sun were thought to outweigh the potential hazard of the dazzling effect

[2] OASL, *Open Air Schools , A Popular Exposition,* OASL, Christchurch, Third Edition, March 1927, p.10.
[3] The League deprecated the suggestion that the prevalence of Canterbury nor'westers would ensure that a large part of the summer would be spent with the doors closed, thus defeating the whole object of the exercise. Data supplied by 'Mr Skey from the Magnetic Observatory', collected over a twelve year period, revealed that while northeast and easterly winds accounted for 40 per cent of the days, and southwest winds for 34 per cent, the wind blew from the northwest in only 7 per cent of the days in the sample. OASL, *Open Air Schools,* ibid.

on children's vision of direct sunlight coming from behind or to the right of the seated pupils.[4] **(Fig. 21)**

Any explanation of the genesis of this building must start with the acknowledgment that the revolutionary form of the Clyde Road classroom had its roots beyond Christchurch. Since 1915, several structures described as open-air had been built, and the lessons learned from these experiments had some impact on the Fendalton building that also had roots in a rough wooden shed knocked together 12,000 miles away in Manchester twelve years before. In the Department of Education's Annual Report of 1915, a brief statement noted that 'One open air classroom has been built in Wellington, and the experiment of teaching children in it throughout the year is at present being made.'[5] This venture had been discussed at the monthly meeting of the newly re-constituted CEB in October 1916. It was noted that the school at South Wellington featured sliding shutters on three sides of the detached room 'that can be opened when not directly exposed to the rain or high wind.'[6] Perhaps South Wellington was not the ideal location to test such a concept although the official Departmental view was that 'the experiment was an unqualified success' despite the caveat that 'some conditions could not be considered favourable.' On the basis of data accumulated over an eight month period, it was revealed that pupils showed considerable 'gains in height and weight,' although no detail was revealed about the statistical nature of the process which allowed the interpretation of these results as proving the efficacy of open-air classrooms.[7] However the Department appeared keen to persevere with this approach and in August 1916, the Director, Dr Anderson, had issued a circular memorandum to boards approving the initiative and asking them to 'consider the question… of providing for open-air instruction', while requesting the submission of plans 'with regard to the climatic conditions of their districts.'[8] Perhaps the last phrase could be taken as bureaucratic code for admitting that the South Wellington experiment had not been as great a success as claimed; one critic has gone even further and labelled it as 'a complete failure because of the exposure to the prevailing winds of the site chosen by the medical officer.'[9] Less than a month later, however, the Wellington Education Board applied to the Department for, and was granted £300, to

[4] The 1921 Building Code approved of the 'germicidal effects of direct rays' but warned that the direct sunlight 'beating' on the pupils was not ideal. ANZW, ACHX, 8731, W500, p.7
[5] *AJHR,* 1915, E-1, p.17.
[6] *AG,* 11October, 1916.
[7] *AJHR,* 1916, E-1, p.13. A more sceptical view is that the Departmental interpretation of these data could be a classic example of the *post hoc ergo propter hoc* fallacy.
[8] This extract was taken from an account of the WEB meeting held in August 1916 and reported in *EP*, 30 August, 1916.
[9] Cumming, *Glorious Enterprise*, p.477.

construct an open-air classroom at Lansdowne School in the Wairarapa town of Masterton, a location where perhaps the winds were considered less violent and capricious. [10]

The drawings for this building show a detached structure featuring a classroom 30 x 24 feet, complemented by a roofed concrete veranda, 6 feet wide, running along the northern aspect of the building. On the south side of the room, a corridor of similar width provided external access at each end of this space that also provided cloakroom facilities. The structure was lightweight in nature being timber framed with 'rustic' weatherboard cladding and a corrugated iron hipped roof. The north-facing side included three sets of glazed casement doors, each 3 x 7 feet, the middle unit opening inwards and the other two opening onto the veranda, presenting the possibility of exposing nearly sixty per cent of the elevation to the fresh air and sunshine while still admitting light if inclement conditions required the doors to be closed. The eastern and western elevations were dominated by a series of sashes which extended from three feet above the floor level and reached up almost to the plate line. However only two of these units, both on the west elevation, were glazed, the remainder were sliding shutters constructed of Poilite,[11] a new material that was also used to line the room. Above the hyloplate strip which served as a blackboard on the southern wall, two hinged windows, each 3 x 2 feet 6 inches, provided borrowed light from two larger windows in the exterior of the southern wall of the building. Two vents penetrating the ceiling and the roof provided some guarantee against stuffiness if weather conditions were such that the doors and shutters had to be closed. No artificial heating system was provided, as the designer apparently assumed that even on frosty days, the sun shining through the open shutters would generate enough warmth early in the school day.[12]

A copy of the Lansdowne plan was found in the CEB files, imprinted 'Architects Dept, Education Board, ChCh', as well as showing an impression from an ink stamp indicating the date of receipt, as 'June 14th, 1917.' This is significant because it indicates a sharing of resources and ideas between boards, but even before this date, the CEB had been at least broadly responsible for the provision of an open-air school in Canterbury. On 3 August, 1916, the Methven School had been destroyed by fire and in the annual report it was noted that a 'new up-to-date building

[10] *EP*, 27 September, 1916.
[11] This British product had become available in New Zealand in 1912 and was described as being manufactured from 'best Portland Cement and reinforced with pure winnowed asbestos… it was sound, fire and vermin proof.' *Press,* 7 November, 1912. Poilite was and still is, commonly misspelled in New Zealand as 'polite.'
[12] For the drawings, see Open Air Schools, 1925, ANZC, CAMQ, CH916, box 15. For the specifications, see ANZW, ABDM, W3659.

is now in the course of erection.'[13] The degree of the Board's Building Department's input remains unclear; the plan does not appear in the files although the completion of the building was confirmed a year later when it was noted that the room 'had been built in accordance with the plan approved by the Medical Inspector of Schools.'[14] By May 1918, the CEB had already received a complaint from the Methven School Committee, on the grounds that the 'open-air classroom was draughty and unsuitable'.[15] More evidence about the problems with this building surfaced two and a half years later when the *Ashburton Guardian* sent its 'Special Reporter' to inquire about the success of this application of the open-air ideal. In the absence of architectural drawings or a photographic record, this report is valuable in supplying some detail about the nature of the structure.

> The open-air principle in the school building is well exemplified at the Infant room at the Methven School. By swinging open windows and doors on three sides of the room, it may be transformed into what is practically a pavilion. The benefit of this arrangement on a hot day when the room is filled with small children can be readily imagined. Unfortunately, owing to the prevalence of strong nor-west winds, this device for making the atmosphere bearable on a summer day has not been employed as often as desirable.[16]

From this account, the design appears similar to that employed at South Wellington, and possibly Lansdowne, where medical opinion appears to have been the pre-eminent influence in the design of the buildings.

It remains unclear to what extent the Building Department of the Board was responsible for the design for the Methven School but there is less doubt as to the CEB Architect's responsibility for a room built at the Timaru school of Waimataitai. The project was signalled in the 1917 Board report when it was noted that 'steps are being taken to erect a detached open-air classroom.'[17] A blueprint titled Proposed Open Air Classroom at Waimataitai showing a 26 x 24 feet 6 inches room is unusual in that it is not attributed to either architect or delineator.[18] Furthermore there is no north point or scale and it would be easy to pass this drawing off as preliminary work for a

[13] *CEB Annual Report,* 1916, p.3.
[14] *CEB Annual Report,* 1917, p.3.
[15] CEB Minutes, May 1918, p.38
[16] *AG,* 4 December, 1920. The use of the term 'pavilion' is interesting in the context of Australian experiments with open-air models. In Victoria in 1912, a low-cost structure was developed consisting of a wooden framework with three of the walls boarded to a height of three feet. Above this, the 'walls' were simply canvas which could be rolled up or down. Referred to as 'pavilion schools' they were not popular on account of their lack of heating. See Colin McGeorge, Schools and socialisation in New Zealand, unpublished Ph.D. thesis, University of Canterbury, 1985, p.140
[17] *CEB Annual Report,* 1917, p.3.
[18] ANZC, CAMQ, 3293, CH916, box 15, record no. A/214/10, 4 October, 1917.

project which was not executed, certainly there is no record in the *CEB Annual Report*, for either 1918 or 1919, in which its completion is noted. However, in another file there is a faded watercolour of a similar structure similarly titled but with the information 'Built in 1918' added in Indian ink and signed by Penlington.[19] The plan shows a room which has grown in size to 676 square feet, heated by a stove unusually located in the middle of the teaching space. The fenestration remains the same with two opposing sides featuring outside access through four casemented glazed doors. One side is taken up by a porch which was clearly intended to be part of a lobby between the room and a proposed additional teaching space. The opposing wall includes sliding sashes but there is not enough detail to be certain whether these were asbestos panels of the Lansdowne type or were glazed.[20] Frustratingly, the continued lack of a directional reference makes it difficult to be certain about the all-important orientation. If it is supposed that the only elevation illustrated is the northerly aspect, the four casemented doors would also be replicated on the south-facing wall, a feature which almost guaranteed a room plagued by draughts. The overall concept appears to owe much to South Wellington, Lansdowne and Methven but there is no subsequent reference made to this building in the Board files.

The Waimataitai model was, however, to attract the attention of the medical fraternity; in April 1919, Dr Colquhoun contributed an article to an Auckland paper [21] in which he claimed that the building had been a 'marked success' and quoted the school headmaster as avowing that 'pupils are in better health, are more attentive and less tired by their work.' This was a typical assertion by the proponents of the open-air argument but no research was cited to support this view and the headmaster's statement may have been coloured by his awareness of the Department of Education's official approval of such experimental buildings.[22] The class teacher was rather more muted in her praise but did express 'her satisfaction with it.' Yet two years later, the school's acting-headmaster was notifying the school committee that 'certain requirements were urgently needed in the open-air room.'[23]

The block at Sumner, built in 1919, was the first example of a building purportedly designed according to open-air principles in the Christchurch area, i.e. the central city, suburbs and adjacent boroughs. In this case, the initiative came from the local headmaster, G.F. Allen, who,

[19] Ibid., box 14, record no. A/214/9
[20] The specifications have not survived.
[21] *Auckland Star*, 3 April, 1919.
[22] See p.48 earlier in this chapter.
[23] Report of the Waimataitai School Committee meeting of October 1921, *Timaru Herald*, 22 October, 1921.

in 1918 was not only running the school while teaching a class of sixty-six, but still had the energy to enthuse the local community into fundraising to subsidise the construction of a new building that would maximise the advantages of a healthy seaside location.[24] Penlington's plan does not appear in the CEB files; however contemporary photographic evidence and a very full newspaper report of the opening ceremony provide some detail of the nature of the design.[25] The block was constructed of timber, and consisted of three classrooms, 30 x 20 feet, 25 x 24 and 24 x 24. Each of these rooms opened out through casement doors into partially enclosed verandas open to the north and northwest. One room was connected to a veranda of 20 x 18 feet and the smaller space which served two classrooms was 18 x 13 feet. Cloak rooms and teachers' rooms were also included in the block.

Penlington had completed the design for the building by mid-1918.[26] He would have been aware of the problems at Methven, had the experience of designing the room at Waimataitai and had the Lansdowne plan on file. Perhaps it is not surprising that he moved away from the detached pavilion in favour of a concept with which he was experienced, a more compact massing of teaching spaces and administrative facilities. Arguably the choice of wood was his nod to naturalism as brick was a material he much preferred for structures of this size yet this prompts the question as to what features of the Sumner School justify it being described as 'open-air,' certainly a term used by Allen in his rhetoric in 1917-18 when he was pushing for facilities for 'outdoor teaching'.[27] It is true that the windows facing north and east were pivot-mounted allowing a higher standard of ventilation for at least two of the rooms than that found in pre-war buildings. Each of the classrooms could be further ventilated via the casement doors which opened out onto the verandas, the presence of which appear to be the major point of difference in comparison with Penlington's standard designs between 1910 and 1920 although he was not confident enough in these measures to eschew ceiling ventilators, four of which penetrated the roof line.

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[24] Mariane Thorpe et al, *The Sumner School History,* Sumner School Centennial Committee, Christchurch 1977 p.41.
[25] The factual material which follows in this paragraph is sourced from the *Press*, 29 September, 1919.
[26] A Building Committee minute noted that the plans for Sumner had been 'submitted and approved', CEB Minutes, 9 August, 1918, p.106. This was a process of consultation with the school committee and it is evidence that Allen and his committee were presumably satisified with the design. The next step took somewhat longer; Departmental approval was not granted until April 1919 and was subject to the local community raising another £100. Thorpe, p.42.
[27] Ibid., p.41

A contemporary photograph shows that pupils seated at their desks have migrated onto the veranda and that a formal lesson is evidently in progress. (**Fig. 22)** However it is likely that such an educational idyll took place very infrequently if at all. Closer examination of the photograph, which was clearly taken for publicity purposes, shows that the class is much smaller than those of the day which averaged approximately fifty.[28] The basic educational furniture of the period was the dual desk, a heavy timber item that also incorporated bench seats; the logistics of small children carrying these out onto the veranda and back in again after the 'outdoor' lesson would try the patience of teacher and pupils alike. The veranda shown is the bigger of the two and if a whole class of fifty was to be crowded into this space, the area available per pupil would be approximately half a square metre and for the smaller veranda, an area of approximately one third of a square metre per pupil. Certainly the overall visual effect of the building was pleasing, its shingled gables and sculpted verandas exhibiting some of the features of the more substantial new villas that would grace many Christchurch streets in the 1920s.[29] Yet this was not really an advance in the search for a workable solution to a method of providing adequate shelter to children while they enjoyed the invigoration of being taught while exposed to the natural elements. At best it was better ventilated than most existing Canterbury school buildings and perhaps this was recognised in that a subtle shift had occurred in the way in which it was now described; both the *Press* reporter and the speakers at the opening function referred to the structure as being built on the 'fresh-air principle'[30] It was a design within George Penlington's comfort zone, but it did little to advance the cause of open-air education; the plan was not used again.[31]

Over the next four years no school buildings touted as 'open-air' were erected in the Canterbury district although the issue was far from forgotten. In 1919, *National Education*, the journal of the primary teachers' union, the New Zealand Educational Institute, kept the discussion alive in an article titled 'Fresh-Air Schools, Preaching a Sound Gospel' although the writer merely retraced overseas evidence about the supposed health and mental gains attributed to a practice

[28] The roll at Sumner at this time was 252 and the teaching staff numbered five; the headmaster and four assistants. *AJHR,* E-2, p. lxv. It should be noted, however, that several pupil teachers were also employed.
[29] Thorpe includes several photographs taken in 1919 sourced from the *Weekly Press,* 26 November, 1919.
[30] *Press*, 29 September, 1919.
[31] Ninety-two years later, the once well-proportioned building had evolved into a sprawling barracks-like structure. The larger veranda had disappeared, walled in to create, somewhat ironically, more interior space. The smaller veranda still existed but only in a much reduced form. Another enclosed wing to the northwest of the original structure had been added. These changes were carried out as part of a remodelling and refurbishment programme that was completed in 1968. ANZC, CAAA, CH45, 2261, box 18.

defined only negatively as not teaching in 'closed schools.'[32] Eminent representatives of the medical profession continued to keep up the pressure; in an address delivered in Christchurch in July 1921, Dr Blackmore, the Director of Tuberculosis Institutions, promoted the need for open-air schools, claiming that 'the present buildings [were] gaol-like and breeding places for disease.'[33] Edith Howes, a popular writer, advanced similar sentiments. Originally written as moral homilies for the *New Zealand Herald*, her articles gained wider exposure when collected and published as *Tales out of School* in 1919. Howes, a retired teacher, had a strong belief that unhealthy and cramped school buildings led to formal education acting as a corrupting force both mentally and physically.[34] In a genuinely visionary passage she recorded her dream that the ideal school would be

> … one roomed in thickness everywhere, round a half circle facing the sun. Each room had its windows opening on both sides to the outer air and each room had wide double doors that were folded back giving light, air and sun free play within, and giving egress to a wide and high verandah that ran the length of the semicircle.[35]

New Zealand's version of the sensationalist press also joined the campaign, reporting with apparent relish, that at a meeting of the Christchurch United Burgesses' Association in July 1923, the chairman had called upon his members to 'form yourselves into a Klu [sic]-Klux-Klan with the object of burning down all the old schools in Canterbury.' It was admitted that the remark had been made in a 'semi-jocular manner' but the writer went on to claim that the statement was an accurate indication of the 'deplorable conditions prevailing in some of Canterbury's public schools.'[36]

With the possible exception of Edith Howes' musings, the sample of views above indicate the problem; there was certainly dissatisfaction with the quality of existing school buildings but little agreement on what should take their place. There was need for leadership and focus and ultimately this was provided by a charismatic polymath, James Shelley, who had arrived from Britain in July 1920 to take up the new chair of Education at Canterbury College. Shelley quickly became a dominant figure in the cultural scene in Christchurch, not only through his university teaching, extra-mural courses and Workers Education Association lectures, but also through his interest and expertise in drama and music. His professional background in education

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[32] *National Education*, 1 October,1919, p.200.
[33] *EP*, 18 July, 1921.
[34] Heather Murray, Howes, Edith Annie, Biography from *TheDictionary of New Zealand Biography* http:/www.TeAra.govt.nz/en/biographies/3h39/1
[35] Edith Howes, *Tales out of school,* Whitcombe & Tombs, Auckland, 1919, p.74.
[36] *New Zealand Truth,* 21 July, 1923.

theory had been gained while working at Victoria University of Manchester under the tutelage of J.J Findlay, a proponent of child-centred theory.[37] From such a viewpoint it is not surprising that the physical conditions under which children learned were of special interest to Shelley who had absorbed many of the ideas espoused by the European crusaders for teaching *en plein air*. He had, in fact, gone further than theoretical postulation; in 1912, he had designed a rudimentary open-air classroom which was built by his students for the Fielden Schools, Manchester. The photograph used by Ian Carter in his biography of Shelley shows a basic unlined wooden shed, completely open at one side, presumably the south, and presenting spacious accommodation, mainly because the class size was limited to a dozen. This room was built only as a demonstration for a summer camp but it does reveal that Shelley had thought about a practical application of the concept of open-air education before coming to New Zealand.[38]

By 1923 he had determined to develop this idea in Christchurch and in association with the ambitious newly-appointed headmaster of Fendalton School, Ray Blank, and the Schools' Medical Officer, Dr R.B Phillipps,[39] developed the plan for the building which has been described at the beginning of this chapter.[40] The design obviously owes something to 'Shelley's Fowl House' of 1912 as it is the ability to open up one side to the elements which helps to justify the term 'open-air' rather than merely 'fresh-air', while the large bank of windows to the north east may have owed something to the Sumner model. However it also seems that the plan is an acknowledgement that the 'pavilion' concept of being able to open up three sides by using sliding shutters was not an appropriate model in New Zealand conditions; the lessons of South Wellington and Methven had been learned.

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[37] Ian Carter, Shelley James- Biography, from the *Dictionary of National Biography*: http://www.TeAra.govt.nz/en/biographies/4s23/shelley-james

[38] Ian Carter, *Gadfly: the life and times of James Shelley,* Auckland, Auckland University Press, 1993, p.46. The relevant photo is between pages 240 & 241.

[39] Phillipps was trained in England. For details of his qualifications see *Supplement to the New Zealand Gazette, List of Persons employed in the Public Service,* 1927, p.3121. He was appointed as the Schools' Medical Officer for Canterbury in 1921. CEB Minutes, 7 October, 1921, p.274. In this role he would have visited the schools at Methven and Sumner.

[40] Carter implies that it was Shelley who was largely responsible for the design. His evidence is that it was the latter's structure of 1912 which was the basis of the plan. *Gadfly*, p.107. This may be true to a point although it is difficult to equate Shelley's 'Fowl House' with the Fendalton prototype which featured a far more sophisticated fenestration system. The historian of Rotary activities in New Zealand states that it was Blank who worked out the proposal [and] prepared the plans.' F.Hall-Jones, *The History and Activities of Rotary in New Zealand,* Rotary International, Wellington, 1971, p.283. In fact, the local architectural firm of Ellis and Hall was hired to assist in the technical aspects of the design. *Open Air Classrooms, Fendalton School-168 Clyde Road,* Christchurch City Plan, Listed Heritage Item, Statement of Significance, Christchurch City Council, n.d., p.2.

It should be emphasised that the process, including funding, was completed entirely independently of the Board whose sole input was limited to permitting the experiment.[41] This decision prompted approving editorial comment in the *Press* which predicted that there would be a demand from other groups of householders to replicate the experiment in their neighbourhood schools. The writer unleashed his imagination to the extent that he imagined a schoolyard featuring 'rose covered bungalows' and others clad in 'geraniums, wisteria and clematis.' It was admitted that there may be some teacher anxiety as members of the profession may have had concerns as to their ability 'to hold the fort against the birds and the bees, the scudding clouds and the dancing light' but that it would be the task of the Board to allay these anxieties. For those more down-to-earth readers it was claimed that the building would incur a total expenditure of only half that required for the standard brick classroom.[42]

The total cost of £465, which included £50 for small tables and chairs,[43] was partially financed by Blank and Phillipps although the largest donation had come from the Christchurch Rotary Club which had been founded by Shelley who had become its second president.[44] Carter claims that this organisation, whose function was to raise funds and to disburse them to good causes, was a malleable group, always very accommodating in bankrolling Shelley's liberal social objectives.[45] The power of the *Press* was also a significant factor in the success of the venture; Phillipps had been given the opportunity to explain the advantages of his prototype in a series of four articles in Christchurch's leading newspaper, publicity which was timed to coincide with the construction of Fendalton School's new building.[46] The revolution now having been sparked, the troika willingly widened the base of the movement by founding the Open Air Schools' League in May 1925.[47] By 1926, the membership of this group showed the extent to which the elite of Christchurch society had been won over to the cause. Sir Heaton Rhodes appeared as Vice Patron and Dr Blackmore as President. The Executive of six included three doctors, and Shelley himself. The extensive list of vice presidents included representatives of the legal profession, retired military men and school headmasters, Ray Blank and G.J. Lancaster of

[41] Although unusual, private funding of public school buildings was not unknown. In 1917, an Ashburton resident pledged £1500 to accelerate the building of a new borough school, thus hastening a project which the chairman of the CEB's Building Committee admitted could otherwise not have been contemplated for another seven years. *AG*, 9 March, 1917.
[42] *Press,* 17 April, 1924.
[43] *Press,* 24 October, 1924.
[44] Hall-Jones, p.206.
[45] Carter, *Gadfly,* p.107.
[46] *Press,* 14,15,16,17 May, 1924.
[47] Carter, *Gadfly*, p.108.

Christchurch Boys' High, and was leavened with high-profile left of centre representatives such as the then Mayor of Christchurch, J.K Archer, and the widow of the former mayor, the radical T.E. Taylor.[48] However the biggest coup was snaring the then Minister of Education, C.J. Parr, as patron, an indication that he was sympathetic to the League's ideals.[49]

The campaign to convince the CEB to adopt a policy of building open-air classrooms gained in intensity, a process which involved providing speakers for public meetings, writing letters to newspapers and lobbying the Department and Board directly. The success of this can be seen from evidence in the CEB Minutes. For example, in May 1924, 'it was resolved to ask the Principal [of the Teachers' College] to have an interview with Dr Phillipps on the question of the provision of open air-buildings.'[50] Later, in July, the Hornby School Committee asked that their infant block should be remodelled according to the 'open-air principle.'[51] Outside groups joined the clamour; the North Canterbury Hospital Board requested that the CEB 'prepare plans and supervise construction' of their proposed open-air school on Cashmere Hills; the Board replied that it 'would gladly cooperate.'[52] Several months after refusing the CEB permission to build an extra room at Linwood on the grounds that a new school in the area would soon be developed, the Department caved in and allowed the expenditure if the new structure was planned on the open-air principle.[53] In an extraordinary breach of accepted process, the Department of Education wrote to the CEB, informing them that they would approve a three-roomed infant block at Waimairi as long as it was similar to that designed by Dr Phillipps at Fendalton. This time, the Building Committee resisted the interference, possibly in support of Penlington against the implication that the Schools' Medical Officer should become the *de facto* Board architect, or possibly out of concern that the incident was another attack on the Board's independence and ultimately its existence. The Building Committee declined the Department's request and stated

[48] Open Air Schools League, *Open Air Schools, A Popular Exposition,* Second edition, Christchurch, OASL, and January 1926, n.pag. The pamphlet, sold at sixpence per copy, was largely a reprint of the articles written by Dr Phillipps for the *Press*.
[49] Ibid. The aims were: 'Firstly the investigation of problems incidental to the school life of children, especially those which have reference to the establishment of such active and open-air conditions of schooling as are necessary for the child's mental and physical welfare, and secondly, the propagation of knowledge relating to these issues.'
[50] CEB Minutes, Normal School Committee Minutes, 15 May, 1924, p.1026.
[51] CEB Minutes, Building Committee Minutes, 16 July, 1924, p.1069.
[52] Ibid., 13 August, 1924, p.1096.
[53] Ibid., 19 November, 1924, p.1164 From 1935, the school referred to was known as Linwood North (sometimes North Linwood) to distinguish it from the development of the new school to serve the Linwood area which was called Linwood Avenue after its construction in 1928. Further similarly named schools added to the potential confusion. In 1958, Linwood Intermediate in McLean Street was opened and Linwood High School in Aldwins Road, had opened in 1954 to provide post-primary education in the area. The latter was renamed Linwood College in 2000.

'that it would, in due course, submit its own plan.'[54] In December 1925, the pressure on the CEB intensified; the Minister of Education made his position quite clear, when as Patron of the Open Air Schools' League, he wrote a foreword to the second edition of the League's pamphlet in which he stated that

> I have closely investigated the working of the four open-air classrooms in Christchurch… I am satisfied that both pupil and teacher enjoy more robust health and display more alertness of mind and a keener spirit of work than in an ordinary classroom… Largely as a result of my recent enquiry, I intend in the coming year to request the Education Boards to erect in suitable localities open-air classrooms similar in type and construction to those at Fendalton and Cashmere.[55]

Penlington, already under pressure from his own Board and from the Departmental Architect when he had been accused of professional and administrative inadequacies,[56] now faced a wider challenge as he was effectively charged with architectural obscurantism, although to a large extent this public criticism was directed at the Board generally rather than at its architect specifically. There is, though, a telling glimpse of his attitude that was revealed after he had finished his design for the Papanui school, a wooden single level structure which was based so closely on the 1921 Building Code that Penlington was later to refer to this as 'the Departmental School.'[57] While awaiting the Department's approval for this project, the Papanui School Committee had apparently come close to withdrawing its acceptance of the design in favour of the blandishments of League activists. Penlington's exasperation is reflected by the text of a telegram he sent to the Department's Officer in charge of Buildings:
'PHILLIPPS AND OPEN-AIR ADHERENTS AT PAPANUI. CAN YOU EXPEDITE GRANT SO THAT WORK CAN BE COMMENCED BEFORE THEY WIN COMMITTEE.'[58]

It is not hard to feel some sympathy for the beleaguered architect as there was something of a religious frenzy whipped up by the League. For example, Ian Carter has aptly characterised the

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[54] Ibid., p.1166. The CEB was to win this round. As noted in Chapter 2, the building of the structure was duly completed in brick.
[55] Open Air Schools' League, *Open Air Schools -A Popular Exposition.* The four schools referred to were Fendalton, Linwood, Cashmere and the Church School of St Marks, Opawa. The complete statement suggests that Parr's 'enquiry' was based on the views of the four headmasters rather than any formal scientifically based investigation.
[56] See Chapter 2 of this thesis, pp. 38-39.
[57] For example in his analysis submitted to the NZEI committee investigating Open Air Schools published in *National Education,* 1 June, 1931, p.263.
[58] Penlington to Department, 25 August, 1925, ANZC, CAAA, CH45, box 16f, Part 1. As noted in Chapter 2, Papanui School was duly built to Penlington's design.

'wider crusade for open air education [as] a transplant of the English public school fetish for cold baths and bedroom windows flung open in all weathers to toughen character and expel filthy thoughts.'[59] In June 1925, the Building Committee issued a statement of justification of its policy to a full Canterbury Education Board meeting.[60] Under the signature of the committee chairman, but showing the hand of George Penlington, it was claimed that the Fendalton building had been 'designed by enthusiasts' who lacked the CEB's experience in school design. It was admitted that the detached bungalow did provide 'a quantity of fresh air'; however the advantage of efficient ventilation was countered by the problem of light coming from three directions instead of one. Much of the League criticism was considered to be 'hardly fair to the Board' as it was based on comparing an experimental classroom with buildings that had been erected fifty years previously, the latter 'cannot be replaced by merely waving a wand'. The statement continued with a strong justification of the policy of providing 'modern fresh air' schools such as Christchurch West, which provided 'conditions which were far preferable to Fendalton especially on a typically unpleasant morning.' Furthermore it was claimed that 'the teachers are certainly satisfied' and that 'the parents would be also if they were interested enough to study the matter for themselves.'

The claims of some open-air enthusiasts that their buildings contributed to enhanced physical and mental gains by pupils were of course impossible to prove and Shelley as a social scientist must have realised this. The only scientific research of any rigour was conducted by P.W. Glover of the Physical Laboratory, Canterbury College.[61] The aim of the experiment was limited to an investigation as to whether there was 'any appreciable difference… between the atmospheric conditions prevailing in two types of rooms due to the difference in ventilation systems', the rooms being the League's prototype at Fendalton and one of the upper rooms in Penlington's block at Christchurch West that was built according to the 1921 Building Code. In laymen's terms the objective was to determine which room had the fresher air, i.e. the smaller proportion of carbon dioxide. It was duly reported that Fendalton had an advantage but that the difference was so small as to be statistically insignificant. The readings were carried out in November and December 1925 and the researcher noted that over the six visits in which data were collected from each school, the Christchurch West room had all its windows open every day and at Fendalton, the northwest doors were open five times and on four of these occasions

[59] Carter, *Gadfly,* p.105.
[60] CEB Minutes, 18 June, 1925, pp.1347-1348.
[61] P.W. Glover, The Kata-Thermometer Applied to the Investigation of the Physical Schoolroom Atmosphere, *Transactions and Proceedings of the Royal Society of New Zealand,* vol.58, 1928, pp.285-294.

all the windows were closed! In his conclusion, Glover named three individuals whom he thanked 'for much valuable albeit harsh criticism during the preparation of this paper', one of those being the ubiquitous Dr Phillipps.

The battle between the 'fresh air' and 'open-air' lobbies had apparently ended in a statistical stalemate perhaps leading the League to intensify the propaganda offensive by publishing the first edition of what was promised to be a quarterly magazine. *The Open Air Life* consisted of twenty-one pages of educational anecdote and articles mainly reproduced from overseas sources.[62] Its eclectic approach could perhaps best be exemplified by a rambling article titled Educational Reformers, which quoted Horace, Montaigne and Froebel in an attempt to persuade readers that open-air education had a proven pedigree.[63] The publication, priced at sixpence, was subsidised by advertising from firms ranging in size from insurance companies to a local stationer.

A review of the minutes of the Building Committee of the CEB in 1927 and 1928, reveals the extent to which the League was winning the propaganda war. In 1927, Christchurch East, Woolston, Addington, Elmwood, Mt Pleasant, Rangiora, Timaru West, Marchwiel and Hunter all requested detached open-air rooms when scheduled rebuilding was due, or as increasing rolls determined their eligibility for additional classroom accommodation. In the same year, Spreydon School was rebuilt largely as an open-air school after its old wooden building was destroyed by fire.[64] In 1928, the trend continued, the demand for such classrooms being as much a country as a town phenomenon. Aranui, Beckenham, Montalto, Leeston, Richmond, Oxford, Southbridge, Clandeboye, Cashmere, Lowcliffe, Tinwald, and Gore Bay all expressed interest in the open air model as part of their building programmes.[65]

Penlington had faithfully replicated the League's 1924 prototype when the Department had approved the construction of further open-air classrooms at Fendalton starting in 1925 although it is true that minor modifications crept into the later rooms built at this school. It did not take long for even the most ardent supporter of the benefits of ultra-violet rays to realise that the heat and glare of the sun made the room uncomfortable for pupils and teachers. By December 1925,

[62] OASL, *The Open-Air Life*, vol. 1, no. 1, OASL, Christchurch, February 1926. It should be noted that there is no record of the publication of any subsequent number of this 'official organ' of the OASL.
[63] Ibid., pp.7-8.
[64] CEB Minutes, Building Committee Minutes, 16 February, 1927, pp. 1916-1917,
[65] CEB Minutes, Building Committee Minutes 1928, various months, pp. 4095-5427.

the Department had agreed to pay for 'awning-blinds' to shade the open north-westerly aspect,[66] and by 1928, the 'barn doors' of the prototype had evolved to the extent that the top section of each door now featured small casemented windows, a change that must have been requested by Ray Blank as it is likely that any improvements suggested by Penlington would have been rejected almost as a matter of principle.[67] **(Fig. 23)**

However in 1926, at Temuka, a location less visible to the Christchurch-based League acolytes, an interesting variation of the Fendalton prototype had been quietly developed. The north-facing sliding doors had disappeared to be replaced by a 'dwarf' wall, 2 feet 6 inches high. Partially glazed doors at each end of the low wall provided access and light while the fenestration between the doors was a unit of Whitney windows, an American system, which provided greater flexibility in the admission of air and direct sunlight. The front elevation was completed with a row of clerestory windows or fanlights as they were then called. The advantage of this model was that it was much more flexible than the Fendalton building which tended to operate either with all the northwest facing doors open or closed. Penlington's model cut down on draughts during bad weather, while in more clement conditions the class could operate with one or more of the doors open and a combination of the clerestory and Whitney windows adjusted to a variety of settings.[68] **(Fig.24)**

In 1927, the school at Linwood Avenue was approved and became the first new urban school to be conceived and built completely on the open-air model. Yet the planning was done against a background of disagreement within the Department of Education. Perhaps distance from the heat of League propaganda in Christchurch led to the possibility of a more dispassionate view, as the Director of Education, T.B Strong, was less convinced of the relative virtues of detached structures. On 22 October, 1927, he forwarded a memo to the Minister of Education in which he recommended that 'No further schools of the Fendalton type' should be erected pending more information about the benefits of this model which, in his opinion, conferred 'no better conditions than modern fresh-air classrooms.'[69] This stance earned a stinging ministerial rebuke when R.A Wright's handwritten comment on the margin of a memo, dated 27 October, revealed

[66] CEB Minutes, Building Committee Minutes, 16 December, 1925, p.1504.
[67] Photo evidence from the OASL, *The New Zealand Open-Air School,* OASL, Christchurch, 1928, pages 6-7.
[68] Ian Cumming claims that the 'Temuka' model was actually developed by W.H Winsor rather than Penlington. His justification is that Winsor was a builder, a Board member and in 1928-29, the Chairman of the CEB. Cumming, *Glorious Years,* p.477. In the absence of further evidence, this claim does not seem compelling.
[69] This and subsequent correspondence and documentation referred to above can be found in ANZW, ACIG, 17240, E 3, box 21, record no. 33/10/358, Part 2.

a rift between the Minister and his Director: 'I regret to say that I cannot agree with the report and direct an open-air school at Linwood be proceeded with.'[70]

Wright's touchiness can perhaps be explained by the fact that he, like Parr, his predecessor, had been lured into the fold of the League; it is also possible that he was not oblivious to the League's claims that building open-air schools was cheaper than the alternative block type.[71] The next day, he approved a Departmental grant for six detached classrooms and work was well advanced before Christmas 1927. The next document in the file is undated and is initialled in an indecipherable fashion but noted that the rooms at 'Linwood High [sic] school will be ready for occupation by April 1st' and ended with the observation that the buildings 'are of the Temuka type of open-air classroom.' Over the next few months, a battle by correspondence was fought between an outraged Minster who had believed that Linwood Avenue School would consist of the 'Fendalton' type bungalows, and the Board which had interpreted the Departmental instruction to proceed as a direction to use the 'Temuka' variant which the CEB believed to be a superior model.[72] The war spilled over into the public arena when the League wheeled up formidable artillery in the person of former Archbishop, Churchill Julius, who in a letter to the *Press*, obligingly trotted out the much rehearsed League line and concluded that 'Linwood [Avenue] School and others like it are not genuine open air schools, and [the] modification of the Fendalton type of school [is] adverse to the health and comfort of teacher and children'[73]

Penlington continued to use the Temuka model when school committees requested open-air classrooms and the Building Committee was usually prepared to back him up, even to the extent of overriding or ignoring local views. For example, when the Hunter School Committee requested that their new building should be of the Fendalton type, the Board's Building Committee resolved that it was its intention 'to erect its own type of fresh air building.'[74] The League sent a deputation to the next CEB meeting and demanded that all new schools should be built to their prototype rather than to the Board's Temuka model. This prompted a Board resolution which maintained that it could not 'agree to submit all proposals to the League.'[75] In

[70] Ibid.
[71] He had written a foreword for the third edition of the League's pamphlet in which he had stated that 'The Government is strongly in favour of Open Air Schools… they are the best for the children and they are healthier than the other schools.' OASL, *Open Air Schools, A Popular Exposition,* n.pag. See also Section Four, Cheapest and Best, in the same publication.
[72] Ibid.
[73] *Press*, 31 March, 1928.
[74] CEB Minutes, Building Committee Minutes, 2 February, 1928, p.5040.
[75] CEB Minutes, 23 March, 1928, p.5069.

July 1928, 'a well-attended meeting of Leeston householders' listened to a presentation from the League spokespersons and then passed a 'unanimous resolution in favour of the Fendalton type' yet the CEB still gave them Temuka rooms.[76] The League reacted by cranking up the propaganda war by publishing yet another pamphlet, this time foregoing textual argument in favour of a completely pictorial approach containing eleven photographs, all of the approved rooms at Fendalton.[77]

Eventually both sides agreed to a formal meeting in an attempt to clear the air. The conference which took place at the CEB Board Room on 18 October, 1928, brought the three major players together. The League was represented by four delegates including Dr O'Brien, Shelley, the president, and Miss J. Dawe, the Secretary. The Board had six representatives including W.H Winsor, the CEB chairman who also chaired this conference, and for the Department, the Director, T.B Strong was accompanied by a senior inspector.[78] In the context of previous League propaganda, the outcome was extraordinary in that Dr O'Brien 'admitted that the type of building was not of great importance if the pupils could be exercised quickly and conveniently' and Shelley reiterated that 'the cultivation of an 'open-air' attitude of mind was the chief consideration' and this could be achieved as long as there was nothing 'to prevent the child having free and easy access to the open spaces.' In other words, the two League spokesmen appeared to be conceding that the only advantage of the Fendalton model was the ease with which pupils could be disgorged into the playground to undertake a 'brisk run.' In an article for the *Press* in 1924, Phillipps had argued that this period of exercise aimed at 'quickening listless lungs' should take place every half hour.[79] The failure by the League's representatives to raise the argument that open-air rooms provided better ventilation than the standard block design was perhaps an indication that Glover's research had been accepted.[80]

Strong then recited a list of issues associated 'with the school advocated by the League.' These revolved around the greater cost of developing a school of detached rooms and the problem of

[76] The League's reaction to this episode is contained in a letter to the *Press*, 23 July, 1928. The writer was Miss Dawe, the Hon. Secretary of the OASL; she accused the CEB of duplicitous behaviour.
[77] OASL, *The New Zealand Open-Air School*, OASL, Christchurch, 1928. The League was confident enough to charge one shilling for this publication. Ten of the eleven photographs were the work of local photographer, George Weigel.
[78] The minutes for this meeting appear in the CEB Minutes, 19 October, 1928 as a two page insertion between pages 5349 & 5350.
[79] Reprinted in OASL, *Open Air Schools*, p.11.
[80] It should be noted that Glover's research had received earlier exposure than its publication in the *Royal Society Proceedings* in 1928. He had read his report as a paper to the Philosophical Institute of Canterbury on 1 Dec, 1926.

supervision of scattered buildings. He suggested that in the absence of clear evidence of the advantages of the open-air bungalow type, the 'block type', i.e. buildings similar to those at Papanui and Christchurch West, planned according to the 1921 Code, should be favoured.[81] Strong had also advanced this view, albeit rather elliptically, in another more public forum. In an essay written for a publication reviewing fifty years of nationally directed education in New Zealand he noted that

> [The] tendency to give thought to the health both of the teacher and pupil … has led to the designing of fresh-air schools and well-lighted schools. The tendency finds its expression in the desire for open-air schools, schools whose covering and whose walls are the leafy trees and whose carpet is the green grass. An excellent ideal and worthy of all encouragement, ideal for the small school, not so easy of realisation in a large school with its complex organisation.[82]

From the evidence it seems that Strong's intervention was crucial to the outcome of the meeting of 18 October, the aim of which was ostensibly to debate the relative merits of the Fendalton and Temuka models of open-air buildings. Strong and his Minister, Robert Wright, were united in their determination to reduce the cost of the education in the Dominion although they may have had different ideas of how to achieve this goal.[83] The Director was probably quite correct in asserting that the Fendalton style with its picturesque dispersal of buildings would cost more than the orderly rows of Temuka bungalows in Linwood Avenue; in the latter case, less space would be required, an important consideration in an urban setting where the price of land was relatively high, as well as leading to savings in the reticulation of services and the lesser requirement for paved paths. However it is likely that building a block of classrooms would have reduced the average cost of each room even further as well as offering the bonus of being able to incorporate offices, teachers' rooms and an efficient heating system from a central boiler room in one central structure.

The meeting of 18 October, 1928, had finally came to 'an agreement that when the next large school was contemplated [that] the parties should get together and decide as to the type of the block building to be erected.'[84] Superficially this was a victory for Strong, yet the Department

[81] CEB Minutes, 19 October, 1928, report inserted between pages 5349 & 5350.
[82] T.B Strong, Present Trend of Education, in I. Davey, (ed), *Fifty Years of National Education in New Zealand, 1878-1928*, Whitcombe & Tombs, Christchurch, 1928, p.145.
[83] Wright has been characterised as a Minister whose 'acquaintance of educational principle was slight' and whose only policy was to cut costs. Ian & Alan Cumming, *History of State Education in New Zealand*, p.233. The same writers had a similarly caustic view of Strong, who in retiring in 1933, thereby provided 'some hope for the future [and]… a little lightness in a dismal scene.' Ibid., p.248.
[84] CEB Minutes, October 19, 1928.

continued to hedge its bets. In its Annual Report in 1929 it was implied that the jury was still out in this issue of detached rooms.

> A careful comparison is being instituted with regard to the regularity of attendance, the frequency of sickness etc., in such open-air schools as compared with the Department's latest type of fresh-air schools.[85]

Finally, in 1932, it was admitted that despite the wide canvassing of opinion and the analysis of health statistics, 'In general it has been a matter of difficulty to state that one type gives better health results than the other.'[86] Thus, the concept of future schools being designed to consist entirely of detached and dispersed bungalows was gently euthanized.

In May 1929, the NZEI had resolved to commission a report on open-air schools. The members of the committee to whom the task was delegated were not named but those consulted were George Penlington, his nemesis Dr Phillipps, and Charles Moore, the architect of the Taranaki Education Board. The teachers who worked in these buildings were also given an opportunity to express their considered views as to the practicality of these structures.[87] The first observation that must be made is that despite Departmental encouragement, only two of the nine education boards had made any significant investment in the building of open-air rooms. Auckland had toyed with the idea but the AEB architect felt that the advantages of the Canterbury detached models did not outweigh those of the block design currently favoured in his district, a view formally supported by the Auckland Head Masters' Association in March 1929.[88] The Wellington Board went as far as writing to the CEB enquiring, among other things, 'what provision is made against the effects of the cold' but apparently took the matter no further and it appears that Lansdowne remained the last experiment of this nature made by the WEB.[89] Hawkes Bay had experimented with two open-air rooms at Parkvale School although the NZEI committee decided not to investigate these further.[90] Apart from Canterbury, it was Taranaki which had done the most to ensure that the ideals of open-air education were reflected in the architecture of the local Board's schools; at the time of the NZEI survey, Moore had completed

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[85] *AJHR,* 1929, E-1, p.5.
[86] *AJHR,* 1932, E-1, p.3.
[87] Open-Air Schools, Report of Investigation by Institute Committee, *National Education,* 1 June, 1930, pp.260-263.
[88] Cumming, *Glorious Enterprise*, p. 478.
[89] CEB Minutes, 17 April, 1929, p.113.
[90] However a short article did appear in the next year with a brief review of these structures, one of which was based very closely on the Fendalton model and the other, a locally developed variant featuring three fully fenestrated elevations with entry and exit through an enlarged shelter shed. Open-air Teaching at Parkvale School, *National Education*, September, 1931, p.419.

thirteen rooms of this type.[91] He used his submission to the NZEI committee to describe his design at Hawera School where five bungalows were oriented north-south and featured hanging verandas at the back and front of the room. This model had no attached shelter shed although 'screens jutting from the angles of the building assist in giving shelter to at least one side in any weather.' Another feature of the Taranaki bungalow was the provision of northern clerestory windows set at an angle of 60 degrees in a mansard roof using Vita Glass[92] which, it was claimed, admitted sunlight without filtering out the desirable ultra violet rays, although Moore also argued that the provision of the northern veranda prevented glare from the afternoon sun.[93] The structure was accessed by two standard doors, and it was presumably this factor which prompted the NZEI Committee to classify this building as 'fresh-air' rather than 'open-air.'[94]

Most of the NZEI report was dedicated to an analysis of the situation in Canterbury and the committee noted the existence of three types of open-air room. The Fendalton and Temuka models have been reviewed above although Penlington then developed a further modification to the latter structure. The need for two more rooms at Linwood Avenue was answered with a further significant change to the grudgingly accepted Temuka variant.[95] The low front wall had been removed and replaced by four partially glazed casemented folding doors. A flat roofed wooden veranda had been added, hung from below the clerestory windows. Extra shelter from cold winds, especially the pernicious local easterly, was provided by glazing the ends of this space. With all the doors folded back this area acted as an extension of the classroom and allowed the flexibility of moving pupils towards the sun and open air while still under the direct supervision of the class teacher. (**Fig 25)** The third type of building as classified by the committee was another modification used, for example at Addington and Elmwood featuring a semi-detached configuration of two classrooms splayed from the axis of a single cloakroom. Effectively this was a cost-saving device as the expense of one shelter shed was saved although

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[91] *National Education*, 1 June, 1930, p.261.

[92] This product, developed by Frederick Lamplough in 1925, featured low iron content and thus enabled increased ultra violet transparency. The new process received Le Corbusier's approbation and Richard Neutra used Vita Glass in his Lovell House in Los Angeles (1927-29). See Grace Lees-Maffei (ed), *Writing Design: Words and Objects,* pp.110-112. books.google.co.nz/books?isbn=1847889573 . In his use of this modern product, Charles Moore from Taranaki, appeared to be a somewhat unlikely member of the international architectural *avant garde.*

[93] *National Education,* 1 June, 1930, p.261

[94] Subsequently these buildings were to attract criticism for their draughtiness and several were modified by converting the rear veranda into a corridor. Foggin to Winterbourne, ANZW, ABDU, W3750, box 234, record no. 3/23, 21 July, 1958.

[95] The Building Committee approved the application for two 'Temuka' rooms as well as a teachers' room and headmaster's office. CEB Minutes, Building Committee Minutes 21 November,1928, p.5863.

the central nature of this ancillary room also housed a single coal fired boiler that made it possible to service both classrooms via a small central heating system. **(Fig 26)** Teacher opinion was sought by sending out thirty-five surveys which asked for a comment on such apparently unquantifiable issues as the extent to which pupils were 'less mentally fatigued at the close of morning and afternoon sessions' and 'were they adequately protected as regards eyesight.' From the fifteen replies received, three advantages and five disadvantages were listed and summarised, although 'replies were almost unanimously in favour of open-air schools.' The conclusions reached for the investigation as a whole were inevitably bland. The concept was approved; 'for ordinary educational purposes the advantage lies with the open-air school' although it was wisely noted that there was no scientific evidence about purported health benefits. In terms of cost, open-air was 'probably' cheaper to build although this advantage was 'not as great as casual investigation might lead one to suppose.'[96]

By 1930, the League was gradually losing control of the revolution it had fomented while the Building Department of the CEB had regained much of its influence. George Penlington had managed to modify the Fendalton prototype, as exemplified by the changes he made at Temuka, Linwood Avenue and Addington, to the point whereby the League was almost isolated in its doctrinaire adherence to its original model. The Department of Education had effectively validated Penlington's initiative by ceasing to complain about his incremental changes to the original open-air plan. The Board's Building Department had obviously gained in self-assurance, for example, in February 1930, the OASL had arranged for an observer from the British Medical Association to visit Fendalton; the Building Committee of the CEB approved as long as the visit was extended so that the BMA official would be shown Penlington's designs at Papanui and Linwood Avenue as well.[97]

However the price of increasing Board independence had been acquiring further discredit in the eyes of the Minister.[98] Consequently the CEB had made yet another attempt to tighten up the systems in the Building Department. Strict guidelines were laid down as to responsibilities; the senior draughtsman, D.E Hutton, was to undertake only the 'preparation' of plans, while the junior draughtsman, John A Bigg, was to draw up specifications and 'to attend to all records

[96] *National Education*, 1 June, 1930, pp.262-3.
[97] CEB Minutes, Building Committee Minutes, 19 February, 1930, p.34.
[98] Wright's letter to the CEB of 8 March, 1928, re the Linwood Avenue incident, was a masterpiece of bureaucratic invective. ANZW, AFIC, 17240, E 3, box 21, record no.33/10/358, Part 2. There was probably some relief at the CEB when the change of government in November 1928 led to the appointment of a new Minister, Harry Atmore; a letter congratulating him was duly sent. CEB Minutes, 14 December, 1928, p.5421.

relating to the architects' department.' Penlington was to take overall responsibility and to acknowledge this by ensuring that his signature appeared on all plans.[99] However there is some evidence that Bigg was by now being seen as more than just a safe pair of hands in the office. In August 1928, the Building Committee recorded a minute which stated that, 'Consideration was given to plans submitted by Mr J.A Bigg. It was resolved to congratulate him on the designs.'[100] This is a tantalising statement because it does not give any indication as to which of the many school buildings planned at this time were the point of this reference; there is a possibility that the addition of the veranda to Penlington's 'Temuka' room was Bigg's work, certainly the photograph of this development at Linwood Avenue for the New Buildings Ledger had his name handwritten in the bottom right hand corner. It may be simply a record that the junior draughtsman had taken the photograph but it could also have been Bigg's attempt to claim responsibility for a concept that was to morph into the famous veranda block, arguably the CEB's most successful building.[101] However, at the very least, the Board's minute was an indication that Bigg was starting to be seen as a designer in his own right and this was perhaps confirmed when office salaries were re-set at the same meeting. Of the nineteen office personnel employed by the CEB, he received the largest increase in percentage terms, seventeen per cent, double the average increase, which lifted his annual salary to £275.[102]

At the beginning of 1931, a schedule was drawn up by the CEB's Building Department which indicated that over the previous decade 62 fresh-air rooms had been built at 22 schools. In addition another 22 class rooms had been converted into 'rooms with open doors on one side.' The description chosen provides a window on Penlington's thinking in that he seemed to be determined to de-emphasise the OASL's contribution to educational architecture in Canterbury; nowhere in the document does he refer to the term 'open-air.' The rooms built to this original design are classified as 'Fendalton type' under the general heading of 'Fresh-Air Schools' which also included other categories; the 'Temuka type', the Board type' (possibly a reference to the

[99] CEB Minutes, 18 March, 1928, p.5119. From late 1928, plans carried a stamp which required individual signatures identifying the estimator, the checker, the Board member who approved it and the date that a copy was forwarded to the Department. ANZC, CAMQ, CH916, box 14. (Stamp affixed to a plan, 21 December, 1928).
[100] Ibid.,15 August, 1928, p.5258. Bigg had started his career with the CEB as a seventeen-year old architectural cadet in November 1920, on a salary of £48 per annum, Salary Card for Bigg, John Alexander, ANZC, CASY, CH278, box 1.
[101] See Chapter Five for an analysis of the development of the veranda block. It should be remembered that office protocol at this time demanded that all drawings had to bear the Architect's signature and the input of any other person, apart from the delineator, was not formally recognised on the drawings.
[102] CEB Minutes, 18 March, 1928, p.5289. However it should be noted that even though they received smaller percentage increases, Penlington's salary was lifted to £650 and Hutton's to £350. Penlington's salary was second only to the Board Secretary, effectively the CEO, who received £700.

veranda variant at Linwood), and the 'Experimental type', probably a reference to the semi-detached model.[103] Of the eighty-four rooms included in the total, the League's purist Fendalton model accounted for twenty, i.e. 24 per cent. Yet all of these figures must be kept in perspective. Even if the converted rooms are counted in this analysis on the same basis as those built as new, only thirty out of the 382 schoolyards in the Canterbury district featured buildings which were itemised in the schedule noted above.[104] On these figures alone, the 'revolution' had not left much of a mark despite the heat generated by the League, but it must be remembered that it was only when new schools or additions were planned, or the Board had judged that existing rooms had reached the end of their useful lives, that local committees could request new classrooms. [105]

An interesting contemporary viewpoint was provided by Charles Sayers who was carrying out research for an M.A. thesis at the start of the 1930s.[106] His field was a wide one and his reference to educational architecture was brief, but he was an informed observer who noted the positive change at the beginning of the 1920s with the east-west alignment of the blocks built by the CEB with the classrooms all facing the sun, the larger window area, the service corridors to the south and an exterior which, with its brick construction was 'serviceable and pleasing to the eye'. He picked out Opawa as example of this type, which he saw as 'one of the finest primary schools in the Dominion.' This four-classroom brick block was oriented to the sun, presented a classical face with its bold pediments and a portico articulating the formal entrance. This air of solidity was complemented by a brick shelter shed.[107] However Sayers then noted that 'Today it is out of date. The open-air school has taken its place.' He saw the change as a radical one, 'Exterior design has sunk into relative insignificance. Appearance has been sacrificed to utility. Orientation is now everything.' Sayers traced the change from the original Fendalton model to

[103] ANZC, CAMQ, CH916, box 13, record no. A/214/1, this document is dated 30 January, 1931.
[104] The total of schools in Canterbury includes those in the West Coast and was correct as at the end of 1930. *CEB Annual Report,* 1930, p.4.
[105] These statistics do not include private schools and it is interesting to note that even the intensely traditional Christ's College, a precinct apparently dedicated to architectural historicism, felt obliged to at least make a gesture in favour of the new movement. In 1929, Cecil Wood was commissioned to design an 'open-air' wing, a contract completed by 1932. This three-storey brick building, that also featured an apse, was planned to allow the opening of the northern fenestration of the top two levels to provide access to balconies. This building is briefly reviewed by Ruth Helms in her unpublished Ph.D. thesis, The Architecture of Cecil Wood, University of Canterbury, 1996, pp.134-135. However, it must be said that OASL zealots, wedded to the ideal of detached timber bungalows that provided the capacity for ventilation from all four directions, would have been less than impressed.
[106] Charles H Sayers, The History of Canterbury as expressed in its buildings, unpublished M.A. thesis, Canterbury College, 1932.
[107] See the photo in Opawa School, *90th Jubilee, May 6-8, 1962,* Jubilee Committee, Christchurch, 1962, p.18.

the type favoured by the 'architects of the Education Board' with its semi-detached configuration.[108]

In trying to account for the relative success of the open-air movement in Canterbury it is important to consider the change within a wider context. Two Swiss doctors, Rollier and Bernhard, had provided some scientific justification for heliotherapy and this probably helped to stimulate the 'Healthy Body Culture' in Northern Europe and California that in its most extreme form acquired a cult-like status based on the worship of 'sun, light and the naked body.'[109] Although organised nude sunbathing and exercise was probably less likely in the relatively prim New Zealand of the 1920s, at least one local conduit to international ideas was provided by Sir Frederic Truby King whose pre-war influence in emphasising the importance of juvenile health has been noted in the preceding chapter. His belief in the virtues of adequate ventilation was complemented by a deep-seated conviction of the benefits of direct exposure to solar rays and the OASL had no compunction in claiming him as an adherent to their views, in fact the admiration was mutual. In an address to the League he maintained that 'Ultra violet rays [have] now proved to be essential for stimulating nutrition, growth, development, spirit, *joie de vivre* and mentality.'[110]

The influence of King's creation, the Plunket Society,[111] should not be underestimated as its influence strengthened in the 1920s and thus provided a fertile soil for the growing demand for a radical change in the structure of primary school buildings, a policy which had also been fostered by the Department of Education's willingness to encourage the boards to experiment. Truby King's ideas were accepted and disseminated by many doctors, but this was a Dominion-wide phenomenon, not confined to the area between the Waitaki and Clarence Rivers. It may be argued that the Canterbury climate provided the relatively benign conditions under which the open-air philosophy was most likely to flower. High winds were far from ideal for buildings which were extensively glazed with windows designed to be opened as much as possible. Persistent rain would hinder the policy of releasing pupils for their half- hourly run. Auckland was warmer than Canterbury but much wetter, the evil nature of Wellington's winds was already

[108] Sayers, thesis, pp.122-123.
[109] Christopher Wilk (ed), *Modernism, 1914-1939: designing a new world*, V & A publications, London, 2006, p.253.
[110] *Press*, 12 June, 1929. In this address King noted that he had said this in a speech in 1925 and that five years later he still believed it to be true. (After 1925, the development of Vita Glass implied that the benefits of exposure to ultra violet light could now be achieved indoors. Refer to the discussion on Grant's use of this product earlier in this chapter, i.e. on p.66.)
[111] See Chapter 2 of this thesis, pp. 36-37.

legendary, and it may have been assumed that Southland and Otago were too cold. Yet too much can surely be made of the advantages of what has been somewhat sardonically termed Canterbury's 'blue dome.'[112] The milder nature of the Hawke's Bay climate would surely have made that district the most suitable area in New Zealand, yet it was the cooler and much wetter west coast, specifically the Taranaki district, which was the only part of the North Island where the idea of detached bungalows ever really caught on.

At the Taranaki Education Board the role of the architect was crucial. Charles Moore was a confident proponent of open-air education and by his own account had developed the country's first open-air school in 1918 which he considered much preferable to any of the subsequent Canterbury models.[113] It is quite likely that he set the TEB's building policies rather than reacting to the demands of others. There was no similar architectural activism in Canterbury where George Penlington was quite comfortable and effective as an interpreter of the Departmental regulations in providing elegant brick and eventually wooden classroom blocks. His experiments with so called open-air or fresh air models had been at best half-hearted and had petered out by1920. In comparison with Taranaki, the impetus for change in Christchurch came from outside the local board structure and for a brief period the OASL's pressure was so compelling that it appeared likely that this well-organised pressure group would usurp the power of the CEB to determine its own building policy.

The desire for open-air schools in Canterbury was never exactly a mass movement but the League leadership was skilled in achieving and maintaining a high profile. The foundation of its success was its influence exerted through the media that was based on prolific pamphleteering and the publicising of its views in local newspapers through reporting its meetings and publishing the letters of its followers. The acknowledged leader of the movement, James Shelley, was a liberal academic whose outspokenness may have led some to recall the allegedly scandalous activities of another transplanted English professor, Alexander Bickerton, a generation before.[114] In this context it was somewhat surprising that the region's most influential paper, the *Press,* took up the League's cause, even to the extent of favourable editorial comment. Perhaps Shelley's biographer is right in arguing that it was his 'protective screen of doctors' that

[112] Cumming, *Glorious Enterprise,* p.477.
[113] *Press,* 20 April, 1936. Moore had just completed a quick tour around Canterbury schools. He admitted that he had 'made a close inspection of none' but claimed that most were facing the wrong way and that as a consequence the 'teacher was continually facing the light.'
[114] See H.N Parton. Bickerton, Alexander William ,Biography, from the *Dictionary of New Zealand Biography* http://www.TeAra.govt.nz/en/biographies/2b23/1

ensured that 'the conservative paper and the radical professor marched in step'.[115] There is no doubt that the League's propaganda offensive must have had some effect on its critical targets; the school committees, and even the CEB members themselves, the latter owing their positions to the school committees that elected them. The OASL provided speakers to committees whose districts were due for new schools or individual rooms then helped the local groups to lobby the CEB by letter or deputation in their demand for open-air buildings. The pressure on the Board had been so intense that, in May 1925, it had resolved that 'all future schools should be of an open-air type' a declaration which, whether by accident or design, was so ambiguous that it did not quite represent the victory the League imagined. Nevertheless, the CEB formally rescinded the motion four years later, effectively a statement that the Board was confident enough to formally reassert its independence from outside interference from a group whose leaders had shown at the conference in October 1928 that their commitment to the cause was not quite as fervent as it had once been.[116]

Despite this, the commitment of the *Press* to the open-air concept in general, and the Fendalton type in particular, did not flag. In May 1929, Ray Blank hosted one of his much-practised tours of Fendalton School for Mrs Holman of the Hornsey Committee of London and a local reporter. The former's approval was obviously welcomed, more so because she was an 'overseas expert' who fulfilled the first duty of such visitors by praising the local endeavour in fulsome tones. For example, Fendalton was 'The most delightful school I have ever seen in my life.' She was impressed with the way in which the children all worked 'steadily' (a situation possibly not unrelated to the temporary presence of their headmaster in the room), and made the point that in her local authority in London, open-air rooms were only for sick children and she much preferred the idea that all pupils should have the ability to learn in such a pleasant environment.[117] Earlier in the year the same paper had reprinted extracts from an article sourced from the *Transvaal Education News.* The open-air school was described as one on which 'we should pin the faith for our future' and the 'Fendalton type is greatly to be preferred.' However the effect of this verdict is rather diminished when close attention to the text of the article reveals that the sole basis of this opinion was a series of articles written in the *Press* which had been used by the editors of the Transvaal paper as part of their investigation into open-air

[115] Carter, *Gadfly*, p.106.
[116] The original resolution had been passed on 12 June, 1925, and was rescinded on 17 May, 1929, CEB Minutes, 1929, pp.126-127.
[117] *Press*, 7 May, 1929.

education.[118] Thus the *Press* was quoting itself and implying to the casual reader that this was yet another example of international acclaim for the work of the OASL.

There is no doubt that the appearance of the first open-air classroom at Fendalton School in mid-1924 was revolutionary in the context of existing school buildings in both town and country in Canterbury. Typical city or even town schoolyards were dominated by imposing structures referencing Gothic and Queen Anne styles which had the effect of warning those who were about to enter that they were leaving the freedom of the outside world to become part of an unyielding and unchanging system that used tradition as a means of social control rather than as a comforting set of values. The League's compact, detached bungalow with its flat ceiling and low stud height must have been much less intimidating for young children. The open nature of the design was perhaps a metaphor for the freer post-war atmosphere of the 1920s and along with the underpinning concern for healthier lifestyles hinted that the open-air classrooms were an attempt at some recognition of modernity.

By 1930, the League purists continued to staunchly maintain their position that an open-air classroom was a detached bungalow that had the capability of having one side of the building completely thrown open to the northwest. Such rooms should be irregularly placed around the schoolyard to present a picturesque effect which could be enhanced with careful landscaping; Fendalton and Cashmere were the approved examples in terms of structure and configuration. The CEB's version at Temuka, that was replicated at Linwood Avenue, was still judged to be a perversion of this ideal because in altering the northwest wall to introduce some fixed glazing the evacuation of the pupils leaving and re-entering the room every half hour for their reinvigorating run was impeded. To compound the heresy, the CEB placed the rooms in the above schools in straight lines. Further changes when the Board introduced semi-detached modules of two or even three rooms were also seen as breaches of the philosophy underlying the original model. In retrospect it can be seen that Penlington and his department were feeling their way to a compromise solution in retaining the League's concern for a teaching space that maximised the advantages of cross ventilation and the admission of as much sunlight as possible with the more utilitarian requirements of easier administration and the making of limited construction budgets go further. This tension was not finally resolved until later in the decade but was eventually to produce a solution which would dominate the educational landscape to the

[118] *Press*, 26 January, 1929.

point that some examples of this evolving structure would dominate Canterbury schoolyards for another thirty years.

Chapter Four. Making do and holding the fort; coping with depression and war.

The role of the education boards was to act as intermediaries between local school committees and central government via its direct agent, the Department of Education. Board spending on school buildings was ultimately a function of total government spending on education while the latter was itself dependent on the health of the government's fiscal position. By 1930, it had become evident that the unravelling of the American economy had started to affect that of Britain, and that New Zealand's dependence on the latter as an export market for pastoral products would impact upon the Dominion's ability to import manufactured goods. The two largest sources of government revenue in the early 1930s were customs duties, which fell with the decline of imports, and income tax, the returns from which were negatively affected by rising unemployment as falling farm profitability decreased the demand for labour in the country and consequently in the towns and cities.[1] Given that the fiscal orthodoxy of the day was for the government to cut spending to match falling revenue, it was obvious that the allocation for education would fall. For the year ending 31March, 1930, total expenditure was £4.2 million, for the fiscal year 1932/33 the amount was £2.8 million, a fall of 33 per cent over two years. The 1933/34 fiscal year saw the bottom of the trough reached at £2.7million before a slow recovery in the next year.[2] The Department of Education decided that deferring expenditure on buildings was an appropriate response to the crisis and the effect on the Board's Building Account was drastic; this allocation covered the grants made for new buildings, additions, furniture and sites. The amount available for the CEB in 1930, £48,112, was relatively normal in the context of the 1920s, but over the next six years the average annual sum approved was only £14,255. In 1932, when the government's retrenchment policy was at its most intense, the CEB building account sank to only £2,894.[3]

In 1932, the government raised the minimum age of admission to primary school from five to six years of age thus helping to restrain the demand for new school buildings. Board costs also fell with a reduction of 10 per cent in award wages in 1931, while office salaries were subject to a general Public Service reduction of between five and ten per cent depending on the level of

[1] *NZOYB*. See the figures under Government Revenue in successive editions 1930-36.
[2] Ibid. See the figures under Education in the above editions.
[3] This analysis is based on Return No.3 in successive *Canterbury Education Board Annual Reports,* 1930-40.

salary.[4] A year later, staff salaries were further savaged with a another round of cuts ranging from 5 per cent for those whose annual salaries were £225 or less, 10 per cent for those who were paid between £225 and £720, and 12.5 per cent for anyone earning more than the latter figure [5] although the highest rate did not apply to anyone on the CEB payroll at this time. The pressure to restrict Board spending was maintained with Departmental requests to Board personnel to find further ways in which to cut expenditure; a range of measures was suggested from requiring drivers of Board vehicles to economise as 'much as possible' and requests to office staff to be careful with stamps.[6] However there was a limit to self-sacrifice; when it was moved that 'owing to the depleted state of the Unauthorised Fund, the practice of supplying refreshments to [Board] members be discontinued', the motion was 'lost on voices.'[7]

The modified rebuilding programme at Willowby School, south of Ashburton, is an instructive example of the way in which Departmental pressure was exerted to squeeze CEB spending. The school had been destroyed by fire in August 1930, and a deputation from the local community requested that the replacement school should be designed to resemble the semi-detached 'Fresh Air model.' The Board's Building Committee agreed and instructed the architect to prepare the plans and to apply to the Department for a grant.[8] Approval was eventually forthcoming but only when the plan had been ruthlessly scaled back.[9] The original design was for a U shaped block;[10] two standard sized classrooms of 624 square feet, lit and ventilated from three sides, were to be enhanced by the addition of partially enclosed verandas, open to the northeast and divided from the classroom by folding casemented glazed doors. When these were opened and the veranda space utilised, the effective size of each of the rooms increased by 27 per cent, to a generous 792 square feet. (**Fig. 27)** As a contrast the plan finally approved was basically a partitioned rectangle providing a combined teaching space of 785 square feet in comparison to the 1930 plan which totalled 1584 square feet, thus the relevant area was barely 50 per cent of the first plan.**[11]** The 1931 structure had two classrooms, each with two windowless walls, and a third with only indirect external access to natural light via the external window of the south facing corridor, the last hour of school time in the afternoon on a winter's day would have been cold with a lack of natural light. With good reason Penlington had changed the title of his plan

[4] CEB Minutes, 19 March, 1931, p.88
[5] Cumming & Cumming, *History of State Education in New Zealand,* pp.248-249.
[6] CEB Minutes, 19 March, 1932, p.88.
[7] CEB Minutes, Finance Committee Minutes, 21 July, 1932, p.836
[8] CEB Minutes, Building Committee Minutes, 20 August, 1930, p.222.
[9] CEB Minutes, Building Committee Minutes,15 April, 1931, p.105.
[10]ANZC, CAMQ, CH916, 3293 box 73, plan A/336/1
[11] Ibid., plan A/336/3

from 'New Fresh Air School' to the perfunctory description of 'Willowby Rebuilding.' **(Fig. 28)** It is almost as if the Board architect, on the cusp of announcing his retirement, was making a political statement about the consequences of swingeing cost cutting; certainly the second design seemed to be a return to pre-World War One conditions. The differences went far more deeply than the reduction in classroom space; in the first plan, these rooms were connected at the bottom of the U shape by two cloakrooms, a built-in shelter shed open to the northeast and a storeroom; a combined ancillary space of approximately 450 square feet. However the area actually built was a corridor running along the southwest side of the building which served as a porch, cloakroom, probably a store room, and possibly also as a shelter shed, a multi-functional utility space slightly less than half the area of that in the original plan.

The consequence of Penlington's resignation[12] was yet another indication of the effect of the straitened circumstances which would seriously inhibit the CEB's building programme in the depths of the depression. The first reaction of the Board was to convene a special meeting of the Finance and Building Committees to discuss a replacement and a decision was made to advertise the position nationally at a salary of £650 rising incrementally to £700 per annum.[13] A month later, the reality of the situation of the depressed economy had become more obvious to Board members and the proposed salary was reduced to £550 rising to £650, 'subject to such deductions as imposed by the Board in the interests of economy.'[14] In November 1931, a Departmental memo was tabled at the monthly Board meeting, reminding the CEB that in 'these times of financial stringency' when there was a need to reduce capital expenditure, it would be 'difficult to keep architectural and building staffs fully employed.' The receipt of this letter had obviously prompted some behind the scenes deliberations as the solution was presented at the same meeting. The extant personnel in the Architectural Department after Penlington's departure comprised a senior draughtsman, D.E Hutton, earning £385, his junior, John A. Bigg, on £277 and a temporary draughtsman, J.A Brewster, on £208. The subcommittee report to the full Board recommended a drastic downsizing of the department; Hutton and Brewster were to be dispensed with, leaving Bigg as the sole survivor and also a winner in that his salary was increased. The report also offered the assurance that, 'If Mr Bigg is placed in control of this Department, the Board can rest assured the work will be faithfully carried out. Mr Bigg has been

[12] See Chapter 2, pp. 44-45 of this thesis.
[13] CEB Minutes, 17 June, 1931, p.188.
[14] Ibid., 17 July, p.250.

in our service for 12 years and has given every satisfaction.'[15] Brewster was invited to re-apply in three months' time for his previous position but was warned that it would be at cadet draughtsman's rate only.[16] Further economies were to be made in the Board's workshops, while building staff was to be hired on a daily basis only; the result of all the above adjustments was an annual saving of £1418.[17]

In his review of the events of 1931, the Minister of Education claimed that, 'Every care has been taken to effect economies that will have the least harmful effect on the system as a whole.'[18] While apparently resigned to the effective suspension of the Building Account, the CEB expressed its deep concern over the slashing of the Maintenance Account.

> With its depleted revenue the Buildings Committee has been able to sanction only the less expensive of essential proposals…. The result has been that many schools have been deprived of the much needed attention that they would have received in normal times. It is feared that if the Maintenance Grant is not increased, the Government will shortly be called upon to face a large rebuilding programme.[19]

However the constant pressure to cut expenditure affected even 'less expensive proposals' which were sometimes turned down. At the meeting of the Building Committee in June 1932, eight separate maintenance requests from school committees for jobs ranging in cost from £3 to £26 attracted the reply that 'consideration was deferred'.[20] More serious problems were, at best, only patched up. Mountfort's legacy at Christchurch East was by now a perpetual albatross around the necks of the local school committee; it complained, not for the first time, that the south-facing rooms received no sunshine and requested remodelling to alleviate this problem. Furthermore the 'tower was unsafe' and needed repair and the chimneys 'were falling away from the main building.' The best the Board could manage was to remove the tower, and to demolish the two cracked chimney shanks and to patch the holes with galvanised iron sheets.[21] Sydenham's complaint that the corridor walls were badly riddled with borer was at least

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[15] Ibid., 18 November, p.429.
[16] Brewster's reappointment lasted for a year only. From 1932-35, Bigg remained alone in what had been an architectural department of four. He was the *de facto* architect, who also carried out the draughting and clerical functions, but was paid only as a draughtsman. In 1936 he earned a new title, Officer in Charge of the Building Department, and a new appointment, Harry S. Stewart, was made to assist with the draughting. Refer to the section, Personnel of the Board, in successive *CEB Annual Reports,* 1932-36.
[17] CEB Minutes, 18 November, 1931, p.430.
[18] *AJHR*, 1932, E-1,p.2.
[19] *CEB Annual Report*, 1932, p.4. According to figures supplied for the Board at its meeting of August, 1933, the Maintenance Grant fell from £29,274 in 1930, to £21,642 in 1931 and £14,004 in 1932. CEB Minutes, 18 August, 1933, p.1362.
[20] CEB Minutes, Building Committee Minutes, 15 June, 1932, p.777.
[21] Ibid., 20 July, 1932, p.820.

answered, albeit only by coating the affected surface with preservative and covering it with plywood.[22]

Satisfactory sanitation had long been a problem for Board schools. In the nineteenth century the 'out-offices' tended to feature a system of pans which were collected weekly and the contents disposed of elsewhere under the cover of night, or by the use of deep pits, positioned under toilet seats and urinals that had to be periodically filled in and dug elsewhere. Alternatively the effluent could be piped to a sump which eventually formed a cess pit. Whichever of these methods was utilised, the result was malodorous and unhealthy and posed a real risk of disease, especially gastro-intestinal, or in extreme cases, typhoid.

As the Christchurch sewerage system extended out into the suburbs, it became possible for schools to enjoy one of the major benefits of twentieth-century urban lifestyle; however by the onset of the Depression, a majority of Board schools in the Canterbury district were still not so favoured. Even in the Christchurch suburb of Papanui, the nightman's services were required until July 1932 when a grant of £187 was approved for the connection of the local school to the new system.[23] For country areas, the problem continued, although a more acceptable technology, the septic tank, had become available as a better solution to the perennial problem of the disposal of human waste. The issue of schools installing the latter system got down to one of cost and in some cases only wealthier districts could afford the local contribution required by the Board and Department. The school at Hook was lucky in that the question was resolved in 1930 before the worst of the financial holocaust, but even then, the purchase and installation of the system, first recommended by the Schools' Medical Officer in July,[24] could not proceed until the local committee agreed to find a quarter of the required sum, a process that took until November.[25] However, a year later, the Board's request for funding to provide similar facilities at Hanmer School was met only by the Department's suggestion that 'during the present shortage of money, temporary measures [should] be taken to dispose of the night soil by means of a good pit'.[26]

[22] Ibid., 20 January, 1932, p.587.
[23] Ibid., 20 July, 1932, p.825.
[24] Ibid., 16 July, 1930, p.190.
[25] Ibid., 19 November, 1930, p.321. The total cost was £170, of which the Department contributed half and the Board a quarter 'from its own funds.'
[26] Ibid.,14 October, 1931, p.360.

Cutbacks in other areas of government spending also impacted on building policies. The schools at Parnassus and Oaro had provided educational facilities for the children of railway construction workers on the South Island Main Trunk Line and in November 1931, a Departmental letter noted this and claimed that no further spending on these schools could be justified as the Public Works Department had ceased work on this project.[27] However, seven months later, the roll at Parnassus still justified more classroom space than that provided. A letter to the Department complained about the 'flimsy canvas hut' used for the accommodation of 'surplus children' and requested that the vacant staff cookhouse at the Main Trunk Railway Camp could be used as a temporary classroom.[28] The Department agreed to this approach and even undertook to investigate the funding of a portable room to alleviate the problem.[29]

Yet the Department of Education continued to tighten the screws on any spending that was considered to be deferrable; a circular advised that installation of electricity for lighting and hot water systems in existing schools and teacher houses would no longer be funded.[30] Perhaps the shortage of funds is best illustrated by decisions, certainly not atypical, made at the July 1932 meeting of the Building Committee. At Hinds, the CEB's Building Department Foreman, having inspected and condemned the fuel range in the teacher's residence, had recommended its replacement with a new Shacklock, but the best the Board Building Committee could do was to resolve to advertise for a second-hand unit. South Timaru applied for separate lavatory facilities for 'its lady teachers' and found the Committee 'unable to authorise' such an improvement but offered a sop to the school committee by agreeing to allocate £3 10 shillings to repair faulty roof spouting.[31] However these were positive outcomes in comparison to the request by the headmaster at Geraldine who, afflicted by chronic severe colds 'contracted through teaching in a draughty room,' requested that the Board provide a 'six foot screen for his protection', but could not even elicit a reply from the Committee, who were content merely to resolve that the letter be received'.[32]

An analysis of the buildings completed in the 1933 calendar year, illustrates the degree to which construction was virtually shut down. Although there are five 'New Schools' listed, closer examination reveals little new investment funded by the Department on a discretionary basis.

[27] Ibid., 18 November, 1931, p.419.
[28] Ibid., 15 June, 1932, p.775.
[29] Ibid., 20 July, 1932, p.818.
[30] Ibid., 16 March, 1932, p.654.
[31] Ibid., 20 July, 1932, pp.818-819.
[32] Ibid., 16 March, 1932, p.651

Haupiri was a relocated building from Wallis Siding, Leaderville was financed solely by local residents, Pleasant Point was funded only because the existing buildings were destroyed by fire, and both Turiwhate and Windwhistle also benefited from rooms relocated from schools with falling rolls. One school, Anama, was allowed an addition, and Richmond had the luxury of having its temporary room improved.[33] In comparison, in the last 'pre-depression' year, 1928, the CEB had completed four new schools, including Linwood Avenue, rebuilt three, remodelled four, and erected one or more new rooms at another fifteen schools.[34] The depression years saw a sustained period of under-investment in new buildings as well as the underfunding of repair and maintenance programmes, both symptoms of the government's fiscal management that had the effect of severely compromising the Board's building stock.

It is tempting to view the election of the first Labour government in 1935 as the herald of a new attitude towards the provision of increased funding for education generally and school buildings specifically. In an editorial in *National Education,* the readers of this journal were reminded that

> In their pre-election manifesto the Labour Party stated that educational expenditure was different from all other expenditure. "It cannot wait, because the passing of the years means the passing of an opportunity." This statement, backed up by Mr Fraser's appointment as Minister for Education raised justifiable hopes.[35]

Yet less than a year after the Labour landslide, the editor had discerned an unwelcome shift in Fraser's attitude; in July 1936, after a nation-wide tour of schools, the new Minister professed himself shocked at the state of the Dominion's educational infrastructure with the despairing statement that an improvement to a 'decent workable condition' [would] 'simply take millions.' The NZEI's journal reiterated its position that, nevertheless, the government should 'spend more and spend wisely.'[36] Fraser's blushes were eventually spared by improving export receipts and an increasing tax take[37] and government spending on education rose to the extent that the CEB's allocation for its building budget improved to £71,226 in 1938 from £26,828 in 1937, an increase of 165 per cent.[38] The late 1930s proved to be something of a golden era for the quality and quantity of Board building,[39] but the onset of the Second World War was to present further

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[33] *CEB Annual Report,* 1933*,* p.4. However it should be noted that Bigg was busy with plans for a major new school, Shirley Intermediate, which was to be completed early in 1934.
[34] *CEB Annual Report,* 1928*,* p.4.
[35] *National Education,* 1 August, 1936, p.307.
[36] Ibid.
[37] Export receipts increased by 43 per cent over the period 1935 to 1937 and receipts from taxation increased by 36 per cent from 1936 to 1938. Analysis based on *NZOYB*, 1940, export receipts, p.251 and taxation receipts, p.573.
[38] Return No.3 in *CEB Annual Reports*, 1937&1938.
[39] This period will be analysed in Chapter Five.

challenges to the CEB in its attempt to further improve the building stock of the Canterbury District.

In the 1939-40 fiscal year, the government spent £5.63 million on education, and in sharp contrast to the years of depression, managed, at least in nominal terms, to maintain this level of spending over the years of the new crisis, in this case participation in a global conflict, which at one stage saw the country facing the possibility of direct attack. In the most difficult period of the war, 1942-43, Education expenditure decreased to £5.038million, but as the Allies started to gain supremacy, the Education budget recovered and in 1944-45 reached £6.216million.[40]
Yet an examination of the amounts that were credited to the Building Account of the Canterbury Education Board tells a bleaker story. For the calendar year 1939, the Board had £82,489 to cover new building and the purchase of land for new schools. This sank to only £19,963 in 1942 and even in 1946, the year after the Allied victory, only £38,447 was available.[41] The difference can be accounted for in the government decision to adopt defence needs as a first priority in the allocation of scarce supplies;[42] supervision of the building industry being exerted through the office of the Building Controller, an official to whom all applications for construction had to be submitted. Only when a 'permit to erect' was issued by this powerful bureaucrat could the project be commenced. Imported construction materials, for example cement, hardwood, reinforcing steel and galvanized iron were even harder to procure after the earthquakes of 1942 in the southern North Island, when it was decided that it was a priority to repair damaged infrastructure and key buildings. Even materials indigenous to New Zealand, such as locally grown wood, were subject to a rationing process, the Timber Controller being responsible for allocating this product after the initial permit had been granted.[43]

The Government's decision to transform a relatively free market into a command economy was generally seen as an acceptable method of using scarce resources efficiently in the overall aim of the pursuit of victory and at the same time to conserve reserves of foreign exchange while also suppressing the potential for inflation.[44] However the consequent shortages and delays

[40] *NZOYB,* 1945, p.110.
[41] *CEB Annual Reports* 1939-1946, Return No.3.
[42] It has been estimated that from 1942-45, 40 per cent of all domestic production was directed into the war effort. See Gary Hawke, *The Making of New Zealand,* Cambridge University Press, Cambridge, 1985, p.167.
[43] For a concise summary of these controls see Economic Reality or Philosophical Change?, by Karen Cheer, in '*Over-sweet cake to wholemeal bread',* Proceedings of a one day symposium: the Home & Building Years, New Zealand Architecture in the 1940s, Christine McCarthy (ed), December 5, 2008, Faculty of Architecture and Design, Victoria University, 2008, pp. 29-37.
[44] Government controls during the war are placed in a wider economic context in Hawke, pp.163-179.

compounded by the need to spend more time completing paper work were inevitably frustrating to John Bigg who found his already small design team of two further reduced when the draughtsman, John Allingham, was granted leave to go on active service.[45] The Building Department, however, managed to retain a full complement of supervisory building staff in that the same foremen at the Christchurch, Timaru and Greymouth workshops remained in the CEB's service throughout the war.[46] Ironically, in 1942, Bigg himself, then aged 39, faced his call-up for national service; the CEB reacted by asking the Minister of Education to exempt him or at least to postpone this action for as long as possible, an initiative which was apparently successful as the Board architect's service to the Board was not interrupted during the war.[47]

Thus, during the war years, and for the immediate post-war period when government controls remained, the problems of the Building Committee could be crystallised around its inability to react to the demand from school committees for new buildings, and also its failure to maintain the existing building stock in an adequate manner. The blockages in the system were first with Bigg himself, who was overworked as he was called upon to design, draft and specify any projects that were viewed sympathetically by the Building Committee. The next hurdle was bureaucratic, as even after Departmental approval the Building and Timber Controllers could delay or prohibit the project. Even when a permitted project had been authorised and a permit for the supply of materials granted, there was still a shortage of skilled labour to work under the direction of the salaried Superintendent of Works and local foremen. In 1940 when the war still seemed rather remote, the Board's Building Committee was already pleading lack of capacity when explaining to the Shirley Primary School Committee that 'a shortage of staff in the Architect's department' caused by absences 'in service of Empire' was the reason why they could not proceed with two urgently required classrooms.[48] After Pearl Harbour on 7 December 1941, and the rapid Japanese advance that appeared to offer a physical threat to New Zealand, it was hard to cavil at the direction that air-raid shelters and coastal defences were, in the circumstances, more important than the provision of additional accommodation in schools, a policy that was the subject of a Departmental memo to the Board when it was noted that the building of new classrooms 'must be postponed in the meantime'.[49]

[45] CEB Minutes, Building Committee Minutes, 18 March, 1940, p.105. Bigg had finally been granted the title of' Architect in November 1939, Ibid.,15 November, 1939, p.580, but with Allingham's departure now headed a design team of which he was the sole member.
[46] See the Personnel List on page 1 of successive editions of the *CEB Annual Report,* 1939-45.
[47] CEB Minutes, Building Committee Minutes, 18 November, 1942, p.463.
[48] Ibid., 20 November 1940, p.533.
[49] Ibid., 18 March, 1942, p.99.

In 1943, the CEB's building programme had slowed to the point whereby the only increases to the building stock were one new classroom, two dental clinics, the construction of two new swimming pools and some dressing sheds. The lack of materials and permits left even an under-resourced Building Department with the capacity to undertake some minor contract work for the Department of Education, for example a brick entrance porch was built for Christchurch Girls' High School.[50] In 1942, a major project had been the construction of air raid shelters in the 46 Canterbury schools considered to be in the most 'vulnerable areas,' [51] yet it was not long before some school committees were confident enough in the progress of the American and Australian forces in the Pacific, to request the Board to remove these emergency facilities,[52] and by November 1943, the Department had sent the CEB a memo authorising their demolition in all schools.[53]

The end of the war in August 1945 brought no immediate relief to the beleaguered Building Department. In some ways the situation was worse because school committees could not now understand the reasons for the continued delay in their building programmes. The Ashburton East committee wrote to the Board to report that there was much unease in their district and requested that at least the foundation stone for their building should be laid 'to relieve the local tension.'[54] When the Glentunnel committee queried a similar lack of action, the answer was typical of that used many times in the immediate post war period; 'to date the Board has been unsuccessful in obtaining a suitable tender.'[55] In the Annual Report for 1946, the Board chairman felt moved to comment that

> Great difficulty has been experienced in providing adequate accommodation in existing buildings due to the shortage of labour and materials. In many instances, buildings which have been unoccupied have been moved to… provide additional space where schools are overcrowded [but] all vacant buildings have been utilised and no further relief can be given. Shortage of [teacher] residences has been a great embarrassment to the Board. In many districts, married male teachers have been selected and the Board has been unable to proceed with their appointments because houses were not available.[56]

[50] *CEB Annual Report*, 1943, p.5.
[51] Ibid., 1942, p.5.
[52] CEB Minutes, Building Committee Minutes, 21 July, 1943, p.247.
[53] Ibid., 17 November, 1943, p.446.
[54] Ibid., 12 December, 1946, p.648.
[55] Ibid., 13 December, 1946, p.681.
[56] *CEB Annual Report,* 1946, p.5.

The overall symptoms of the two periods of crisis had been similar in that each had been characterised by severe shortages of classroom and administrative accommodation as well as a paucity of adequate teacher residences. The problem had been exacerbated by the cutting of spending on maintenance which had the effect, over time, of further compounding the issue of the deterioration of the quality of the existing building stock. In each case the decision to underfund building budgets had been a central government policy undertaken consciously in an attempt to deal with a situation which was judged to be so serious that there was no alternative. In their reaction to the problems of both depression and war, the CEB had reacted with some skill in that the gaps were plugged by moving rooms around the checkerboard of the Canterbury Plains, but such a strategy could not indefinitely satisfy the pent-up demand for modern, well-maintained buildings. The lack of capacity which characterised the 1940s was to continue well into the next decade against a growing demand for new buildings fuelled by a sharply increasing school rolls.

Chapter Five. The Canterbury Plan.

In March 1942, an article on contemporary New Zealand architecture was featured in the *Architectural Review,* a journal that was arguably the most prestigious of its type in the English speaking world.[1] The buildings reviewed included houses designed by Paul Pascoe in the modernist style, Clifford Muir's Dunedin Teachers' College, Gray, Young, Morton & Young's Wellington Railway Station and a Canterbury primary school classroom block.[2] The latter was the 'verandah block' developed at the beginning of the 1930s that had evolved to the stage when it earned plaudits for its 'clean and pleasant architecture.'[3] **(Fig 29)** The article was based on a submission, probably unsolicited, from the local writer H. Courtney Archer, a hitherto unheralded commentator in New Zealand,[4] who must have surprised many, including himself, to achieve publication in a magazine of which Nikolaus Pevsner was, at this time, *de facto* editor. There is even a possibility that the above comment was made by Pevsner himself, based on his view of the photographic evidence supplied by Archer; the pithy description was presented in a side bar and may well have been an editorial comment rather than a direct quote from the article. However it is equally likely that Archer included detailed notes with each of the images he included and that these were directly incorporated into the final article. Whatever its origin, the complimentary reference must have been a considerable boost to the professional standing of both John Bigg and the Canterbury Education Board. Some attempt therefore should be made to account for the genesis of this design.

George Penlington, the Board architect until his resignation, in July 1931, had designed classrooms at the open-air school at Linwood Avenue in which the basis for the veranda block can be discerned. As noted in Chapter Three, the detached bungalow model had been retained, but the low northern wall of the 'Temuka' variant had been removed in favour of four casemented and glazed folding doors which opened out on to a veranda which could be accessed

[1] See Michael Dudding's article, Memory, Evidence and artifice: the overseas journal in New Zealand post-war architectural historiography, *Over-sweet cake to wholemeal bread,* pp.38-45. Dudding sets out to show that the influence of American publications should not be overlooked as a transmission channel for Modernism to New Zealand practitioners but still concedes that *AR* was a major influence. Dudding's article concentrates on the post-war period and it is likely that English influence was relatively much stronger in the 1930s.
[2] *AR,* March, 1942, pp.52-58.
[3] Ibid., p.58.
[4] Jessica Halliday, Who was H.Courtney Archer? *Over-sweet cake to wholemeal bread,* pp.53-59. This paper covers the background to Archer's article.

to create extra floor space open to the elements. Given that both the CEB and the Director of Education had expressed a preference for blocks rather than standalone bungalows, it was not surprising to see that the next large project tackled by the Board moved away from the detached buildings which comprised the classroom accommodation at Linwood Avenue.[5] Sydenham School was one of the oldest in Christchurch and featured several ageing structures including a double storey brick block designed by the NCEB architect, Everard Farr, in 1884. By early 1930, the rebuilding project was Number 6 on the Board's urgency list;[6] by the end of the year, the Minister's refusal to consider a grant led the Board to record 'an emphatic protest against [his] attitude,'[7] and early in the next year the Building Committee moved Sydenham to the top of its list for 1931.[8] The continued pressure on the Department was effective in that consent was gained to finance a partial rebuild, a notable victory in the prevailing financial circumstances. Before retiring, Penlington had time to take responsibility for the design of an infant block that was basically a consolidated model of his Linwood Avenue detached bungalows of 1929.[9]

The Sydenham building, oriented to the north, included five classrooms, the two larger spaces at each end of the block being 26 x 22 feet, and the other three 24 x 22 feet. (**Fig. 30)** The structure also included two cloakrooms with hand basins for the use of the pupils[10] and a 'Mistresses' Room'. Unlike Penlington's 'Departmental blocks' of the early 1920s, there was no corridor on the south side of the building, instead a veranda seven feet wide, on the northern aspect provided a means of communication between rooms as well as creating extra space that could be accessed by opening one or more of the bi-folding casemented doors that effectively removed up to 15 feet of the classroom wall when weather permitted. The rooms were further lit with two rows of 'top lights' or clerestory windows above the bi-folding doors to the north and also on the south walls. Thus, the dimensions, fenestration and orientation were all broadly within the boundaries of the 1921 building code while minor transgressions, for example one of the cloakrooms being a foot too narrow, were presumably overlooked by the Department's architectural team. The block was personalised by two gables, a motif favoured by Penlington, who despite his post-Napier earthquake misgivings about their use in brick buildings, was comfortable in using this feature in wooden structures. Heating was accomplished by two separate boilers that provided a

[5] This background is covered in Chapter Three of this thesis, pp.61-62.
[6] CEB Minutes, Building Committee Minutes, 19 March, 1930, p.69
[7] Ibid., 19 November, 1930, p.319.
[8] Ibid., 15 April, 1931, p.106.
[9] The drawings for this project are held at ANZC, CAMQ, 3293, CH926, box 19.
[10] The requirement of the 1921 code that pupil lavatory facilities should be detached from classroom blocks was still current.

circulating hot water system. The whole design was light and airy, and owed some debt to the first open-air classrooms of Fendalton, but was recognisably the work of the retiring Board architect who had further adapted his inflection of the open-air bungalow to produce a model that would dominate the design work carried out by the CEB for the next two decades.

After Penlington's resignation and the consequent downsizing of the Building Department,[11] John Bigg's initial major project was to design Canterbury's first dedicated intermediate school at Shirley.[12] In 1922, C.J. Parr, the Minister of Education, had floated the idea of junior high schools offering three year courses for Standards 5 and 6 and Form 3 pupils, as 'separate units unattached to either secondary or technical schools.'[13] However only one school of this type had been built: Kowhai, at Mt. Eden in Auckland, in 1922. No similar investment occurred for the rest of the decade as the Department was then dominated by a Minister, Wright, and a Director, Strong, who were united in their determination to cut expenditure rather than continuing with an experiment which smacked of a requirement for extra funding. In 1932, the government's desire to save money resulted in regulations which defined 'intermediate' schooling as offering a two year course for Standards 5 and 6 only, these institutions to be staffed to the less generous primary ratios and the teachers paid according to primary salary scales rather than being based on a separate junior high school scale.[14] The new system was quickly locked into place when a series of approvals for a group of these schools took up a large part of the diminishing pool of funds available for school building in the early 1930s.[15]

Bigg's preliminary problem was to deal with the challenge mounted by the Open-Air Schools' League which possibly perceived the new architect as a softer target than Penlington. A deputation led by Dr Bevan Brown indicated that although the League's leadership had changed, its policy remained the same as that first enunciated in the previous decade; they requested that the new school should be based on the 'detached open-air principle.' The relevant minute states that the OASL spokesmen were informed that the CEB would prepare drawings 'in accordance

[11] See Chapter 4, p.77 of this thesis.
[12] From 1932-36, Christchurch West District High School was designated a Combined Intermediate and District High School. However no new building was required as primary students were transferred to other schools in the area. G.W Fricker, From Christchurch Academy to Hagley High School, 1858-1966, unpublished M.A. thesis, University of Canterbury, 1965, p.83.
[13] John E Watson, *Intermediate Schooling in New Zealand,* Wellington, NZCER, 1964, p.37.
[14] John L Ewing, *Development of the New Zealand primary curriculum 1877-1970,*Wellington, NZCER, 1970, p.189.
[15] The schools in question, with their dates of commencement, were Napier 1932, Shirley 1933, Wanganui, 1933, and Dunedin North 1934. Watson, Appendix C, pp.449-450.

with the Department's typical plans', a statement which was at best evasive and at worst untrue as there were no such plans available for intermediate schools at this stage. After the deputation withdrew, the Building Committee resolved to advise the Department of Education of the Board's 'preference for the erection of the building on the lines of… Sydenham School.'[16] It is likely that the planning process was already in an advanced state because two months later it was recorded that the Building Committee had approved the plans for Shirley Intermediate on the 'open-air principle',[17] a description which must, at this stage, have elated the OASL but masked the fact that the new school was unmistakeably based on the veranda block developed by Penlington for Sydenham. The classrooms were certainly not detached although the northern aspect could be largely opened up by virtue of the casemented bi-folding doors. Furthermore, because of the block configuration, fenestration was limited to the northern and southern walls of the rooms, a far cry from the Fendalton model which featured windows on all four sides of the teaching space. However, Bigg's short-term subterfuge hardened into policy; subsequent veranda blocks were unblushingly described as being based on the 'open-air principle', a categorisation which presumably mollified the OASL as the organisation refrained from further protest about the 'perversion' of its original Fendalton model.

It is worth considering Bigg's approach to the Shirley contract in more depth because it reveals his determination to put his own stamp on the process and to establish his credentials with his Board and the Department as well as with the local building industry. The first stage was a contract for the administration area, eight classrooms, a laboratory and a small library completed very speedily in the latter half of 1933 and opened by the Minister of Education, Robert Masters, on February 26, 1934.[18] The school was designed in the shadow of the Napier tragedy; hence it was given that construction would be in wood. Bigg had obviously been unhappy about the quality of timber used in previous contracts because inserted into the specifications was a notice titled 'Definition of Heart Rimu,' which noted that this grade of timber should be 'clean heart 100% in each stick according to the Standard Grading and Classification adopted by the New Zealand Saw Millers Association.'[19] Heart rimu was extensively prescribed for the new school; plates, studs, dwangs, joists, rafters, purlins, sarking, weather boards and flooring were thus specified, although contractors were warned that 'no West Coast seasoning will be permitted.'[20]

[16] CEB Minutes, Building Committee Minutes, 19 April, 1933, p.1204.
[17] Ibid., 17 May, 1933, p.1245.
[18] Butchers, p.148.
[19] ANZC, CAMQ, 3008, CH662, box7/ac, insertion after p.3.
[20] Ibid., pp.12&19.

Bigg seized the chance to design an integrated complex; a U shaped space was created with the administration area, laboratory and library forming the bottom of the U, while the two veranda blocks of classrooms, each of four teaching spaces were arranged in a parallel configuration oriented towards the north.[21] The focal point of the school, viewed from North Parade, was the official entrance to the administration area. This portico was a tightly controlled essay in symmetry displaying a restrained classical dimension as expressed in the use of a pediment and pilasters that framed a recessed and extensively glazed unit which included the main doors. (**Fig. 31)**

The two parallel veranda blocks, one of which could be viewed from Shirley Road, presented a similar appearance to the Sydenham model; the clerestory windows accentuated the lightness created by the glazed casement doors that were designed to improve the learning conditions for pupils by enabling the opening up of the classroom to make the most of sunlight and natural ventilation. The fact that passers-by could, therefore, see into the room suggested the relative openness of the modern educational process. Bigg had made small changes to the character of Penlington's design; the gables favoured by the latter had disappeared and a different feature had been used to indicate the presence of a new architect comfortable with the emerging influences of Modernism. A small wooden trellis, based on a simple geometric design, was used to articulate each external doorway from the veranda into the classrooms and ancillary spaces. (**Fig. 32)** In another departure from the practice of his predecessor, Bigg had ventured into landscape design; previous practice had been restricted to specifying that a certain area should be covered in a nominated paving medium, but the new architect had developed a coordinated plan for a separate asphalting contract which showed evidence of attention to detail that promised to enhance the way in which the school could function. A pathway, aligned with the portico, led from the kerb in North Parade. This feature, 110 feet in length and 18 feet wide, broadened into a 60 x 35 feet apron that serviced the formal entrance. The area between the two classroom blocks and the administration precinct was transformed into a quadrangle through the erection of a temporary corrugated iron fence to the west. Bigg's specifications allowed not only for gardens to soften the rear view of the administration block, laboratory and library but also for the use of asphalt strips to delineate grassed quadrants which could have been used to organise

[21] The drawings for the 1933 contract are at ANZC, CAMQ, CH564, box 270, RS/257, Folder 1.

pupils in formal outside assemblies, an important consideration bearing in mind that there were no plans for the construction of an Assembly Hall.[22] **(Fig. 33)**

Whereas Shirley Intermediate, as a new school on a new site had been a blank canvas, the project at Christchurch East was a staged replacement of existing buildings. Mountfort's timber Gothic structure had been opened with a rhetorical flourish on November 11, 1875,[23] but by the 1930s the building was 'rapidly failing and decaying with old age and constitute [sic] a danger to scholars.'[24] For a decade the Board had patched and prevaricated and since the onset of the depression had pleaded 'financial circumstances' as the reason for its lack of action in pushing the Department to rebuild the school.[25] Finally the Building Committee agreed to submit a compromise plan requesting a grant for four new rooms as a nucleus for a complete rebuilding sometime in the future.[26] The Department's reply must have staggered the CEB; a pencilled note in the file, possibly a record of a telephone conversation or a copy of a telegram, recorded the news that 'Mr Savage recommends that Board apply for total replacement and draughtsman instructed to prepare plan accordingly.'[27] Savage was the Departmental Architect and would not have made such a statement without clearing it with the Director and the Minister. After years of being starved of funds to fix problems at existing schools, a request for four new rooms had been answered by permission to rebuild the whole school, a decision which may have been prompted by the looming national election. By the end of the year Bigg had prepared the plan[28] which was submitted to the Department in February 1935.[29] The interest generated in the work-starved local building industry was so intense that sixteen firms tendered for the contract. The grant, traditionally based on a Board estimate and approved by Departmental officials, was £7132, but the lowest tender, submitted by Peter Graham and Son came in well under this amount at £6131. By August, Mountfort's building had been demolished and the once lauded structure had been reduced to bundles of salvageable timber, the sale of which raised £369.[30]

[22] The school's first assembly hall was not built until 1958.
[23] The lengthy speeches were printed verbatim in the *Star,*11 November, 1875.
[24] Chairman of the School Committee to the CEB, ANZC, CAMJ, CH191, box 69a, letter dated 6 June, 1934.
[25] This was the Board's reaction to a deputation from the School Committee in June 1930. CEB Minutes, Building Committee Minutes, 18 June, 1930, p.159.
[26] CEB Minutes, Building Committee Minutes, 15 August,1934, p.1856.
[27] ANZC, CAMJ, CH191, box 69a, 810/1935, document dated 30 August, 1934.
[28] Ibid., 12 December, 1934.
[29] Ibid., 15 February, 1935.
[30] Ibid. Documents dated 14 June, 17 August & 19 August, 1935.

As required by the 1921 code, Bigg's design reversed that of Mountfort by orientating the building towards the north, thus presenting the bland aspect of the weatherboard southern wall with its uniform clerestory fenestration to Gloucester Street. However, there was some relief from this institutional homogeneity in that the public entrance to the school's administrative block included a reference to modernity in the use of an art deco surround, while the recessed and extensively glazed unit that included the doors, had been retained from his Shirley Intermediate design. **(Fig.34)** The building, styled the 'Main School', was symmetrically arranged with two wings, each of four classrooms, 24 x 22 feet that flanked the administration block of two levels, each 34 x 31 feet**.** Given the spatial requirements of the stairs and landing area, Bigg's design was efficient; the second level included an L shaped staff common room and kitchen, a ladies' cloakroom with a water closet,[31] and also the school dental clinic and waiting room**. (Fig.35)** This may have been an attempt to economise by grouping plumbing and electrical systems needed by these facilities, rather than placing the clinic as a detached structure some distance away from other buildings. Downstairs, a T shaped lobby provided immediate access to the classrooms which adjoined the administration area. The headmaster's room and a combined library/storeroom were separated by a passage which led to the main entrance from the schoolyard.[32] Yet for a school based on the metaphorical openness of the veranda block, there was a reminder that the system was still hierarchical. The northern door from the administration block, framed with vertical timbers, opened on to the asphalted area of the playground; on the roof of the porch two large loudspeakers indicated that assemblies would be run from the centre of power, the steps leading to the Headmaster's Office, and that his prestige and authority were to be buttressed by the flag flown from a pole, rigged from a point above the roof of the porch. (**Fig.36)**

The second part of the rebuilding project was completed in 1939 in the form of an infant school in the now standard format of the veranda block. The four classrooms were bigger than those in the main school, 26 x 24 feet[33] and two of the rooms could be combined by the opening of accordion doors. The block also provided two cloak rooms and an infant mistresses' room in a structure that was 139 feet long exclusive of shelter sheds attached to both ends of the building, an innovation that Bigg had first used when planning the Main School. The boiler room was

[31] Yet as late as 1940, the Board was refusing requests from other schools for similar facilities. For example, the Cashmere' committee's request was dismissed with the comment that the Board did not 'approve of the provision of lavatories in school buildings.' CEB Minutes, Building Committee Minutes, 21 August, 1940, p.341.
[32] The drawings for the Christchurch East contract are at ANZC, CAMQ, CH564, 3252, box 79.
[33] In 1938, the Minister of Education had decided that the size of the standard classroom should be increased to these dimensions. CEB Minutes, Building Committee Minutes, 16 February 1938, p.57.

placed behind the eastern shelter shed, unlike some of the earlier models in which space within the classroom block itself was used for this purpose**. (Fig. 37**)

In 1938, it was shown that the model could also be adapted for use in smaller schools. At Ashburton Borough School, a two classroom block, each room 26 x 24 feet, was erected; the ancillary space allowance of 10 x 26 feet, was utilised as a cloakroom which also included some storage cupboards. The wiring diagram shows the basic provision of this service in inter-war period classrooms of this type. Only one light fitting per room, located in the centre of the ceiling was allowed, although two lamps were provided to illuminate the veranda. (**Fig. 38)**

In the same year, Bigg was faced with the problem of providing accommodation for a one-teacher school at Snowdale, in the Lees Valley, an isolated situation subject to seasonal climatic extremes. A contemporary photograph shows a basic corrugated iron edifice in a bleak tussock-covered plain, a temporary structure which was, at last, to be replaced.[34] Bigg's solution was to scale down the veranda block; he designed a single classroom, 16 x 18 feet[35] with a 7 x 18 feet veranda which provided the potential to increase the teaching space by more than 40 per cent when weather conditions allowed the opening of the three casemented sliding doors.[36] (**Fig. 39**) A concrete slab, 19 x 12 feet adjoining the veranda, created an outdoor surface which provided some relief from the pervasive tussock. In the Depression era and the years of the war, the existing structure would probably have been removed to another location but perhaps the poor condition of the building prompted the Department to permit the Board to move the room to a position nearer the notional boundary of the site and to transform it in into a 'saddle shed' in recognition of the mode of transport used by most of the pupils. This space was subsequently also used for handcraft and as a lunch room.[37] The positioning of the adjoining cloak room to the west of the classroom would have probably have helped to shelter the teaching area from the violence of the local northwest gales. There was a major difference in the fenestration from that provided for the detached Christchurch schools built in the 1920s. Natural light was admitted from the north through the casemented doors, as well as from a clerestory unit of three panes above the veranda, and two in the south wall. However, no windows were provided in the east or west walls, a departure from the standard system used by Penlington a decade before, but very

[34] H.R. Hooker, *Bead-Frames to Calculators- a Teaching Life,* H.R. Hooker, Christchurch, 1983, page facing p.19.
[35] Its size led to a delay in gaining Departmental approval as the Minister worried that it was too small to allow for roll growth. The Board finally convinced Peter Fraser that the school roll of 14 was not likely to increase in the foreseeable future. Dowland to Lambourne, ANZC, CAAA, CH5, 2261, box 5, 16 June, 1937.
[36] The drawings for this project are held at ANZC, CAMQ, 3008, CH662, box 7.
[37] Hooker, p.24.

much in line with that employed for the then current veranda block. Bigg had contented himself with borrowing light from the glazed eastern aspect of the veranda, thus indirectly illuminating and warming the room via the casemented northern doors.

The model was just as easy to apply to a three-classroom block; in the *annus mirabalis* of 1938, when 14 major rebuilding projects were completed, new infant blocks of this size and style were constructed at Waimairi and Beckenham.[38] The standardisation in the basic plan did not mean that each school received an identical building; in fact in consultation with the architect and Senior Inspector, the local committee could choose to vary the configuration of ancillary rooms within the block. At Waimairi, this space had been used for a pupil cloakroom, teacher office and store between classrooms 1 and 2, and another cloakroom between rooms 2 and 3.[39] Beckenham had used all the allowable ancillary space in one module, a double sized cloakroom with teacher office and store space between Classrooms 1 and 2, thereby creating a situation where classrooms 2 and 3 could be used separately but could also be combined by pushing aside the accordion door that acted as the division between these spaces.[40] Although the *Architectural Review* article referred to at the beginning of this chapter lacks measurements in its ground plan sketch, the configuration of the rooms and evidence from Archer's illustration appear to indicate that it was probably Bigg's plan for the Beckenham Infant block that appeared in the British journal in March 1942. (**Fig.40)** While the Building Department was managing the extensive rebuilding programme, planning for a new project, the largest school yet designed by the CEB, was also taking place.

Land had been acquired in Selwyn Street in 1928 [41] in recognition of the eventual need for another school in this area: the decision to develop the site as an intermediate school was made to take the pressure off the large schools of Addington, Sydenham, Somerfield and Spreydon, as well as providing a centralisation of manual training facilities for the southern part of the city. Bigg's experience in designing Shirley Intermediate was obviously relevant, but Christchurch South Intermediate was to be a much larger project to be handled in two contracts; the first called for the provision of fifteen general classrooms, and an administration block. The second contract was to provide rooms to cater for cookery and dressmaking, woodwork and metalwork, a

[38] *CEB Annual Report,* 1938, p.4
[39] MB. Waimairi School Alterations, 2162, item 2807.
[40] ANZC, CAMQ, CH564, 3253, box 57.
[41] *CEB Annual Report*, 1928, p.4.

dedicated science laboratory and an art room as well as a separate space for craft education.[42] Three veranda blocks of classrooms were configured in the form of a shallow north-facing crescent, the two wings being aligned at approximately 165 degrees to the central building. **(Fig. 41)**

An immediate reaction is that the vision of the writer Edith Annie Howes had been realised. It is of course possible that Bigg had been an assiduous reader of *Tales out of School*, but it is more likely that this solution was a logical approach which best fitted the irregular shape of the site and the required size of the school while maximising the advantages of the veranda block. However the design did present an approximate version of Howes' ideal with its 'windows opening on both sides… wide double doors , folded back … the wide verandah' that ran the length of the building and the configuration of the structure 'one roomed in thickness everywhere, round half a circle facing the sun.'[43] An innovation was the incorporation of pupil toilets by designing a wedge shaped access way from the veranda at each end of the central block leading directly to these facilities. Effectively these spaces, isosceles trapeziums, were the features which enabled the correct alignment of the three blocks to create the crescent while the access way, that also provided hand washing facilities, allowed pupils to use the toilets without having to leave an area which was roofed. Because the toilets and access ways could only be entered from the veranda, the former were not technically in the block, thus Bigg had effectively walked the fine line between the code proscription of lavatories inside school buildings while providing more comfortable facilities for the pupils in a manner that was obviously acceptable to the Department. (**Fig. 42)** The administration area was, like that at Christchurch East, a two storey insertion into a classroom block, but the symmetry of the former was eschewed in favour of locating this structure in the west wing, presumably because this building was closest to Selwyn Street which was the obvious public access to the site. The second level contained staff facilities although the Christchurch East experiment of including the dental clinic in this area

[42] Shirley Intermediate had been built with no specialist rooms except a science laboratory, although in 1935, clothing and homecraft rooms were added, but the school had to wait until 1957 for further specialist rooms. ANZC, CH210, p.411. In 1938, Clarence Beeby's Report on intermediate Schools was published and his findings marked a shift in Departmental attitude with regard to providing specialist facilities as part of the initial construction of these schools. His specific recommendation was that if intermediates were to perform their functions satisfactorily, 'A good library is most essential, as also are rooms and equipment for woodwork, metalwork, cookery, arts and crafts.' C.E. Beeby, *The Intermediate Schools of New Zealand*, NZCER, Wellington, 1938, p.242. In 1938, Beeby was appointed Assistant Director of the Department of Education and in 1940, he became Director.

[43] Howes, p.78. Howes' theories have been alluded to in Chapter 3, p.54 of this thesis.

was not repeated; a coal and coke fired boiler room under the ground floor of the administration area provided central heating.[44]

The second contract, which was let in December 1938, was for the construction of the specialist rooms. These were configured in an L shape which allowed the effective segregation of pupils on a gender basis; the horizontal of the L providing a female domain including cooking and dressmaking rooms, the top of the vertical stem included the woodworking and metal work rooms and in the area between, teaching spaces for science, art and crafts, a concession that these subjects could be taken by both boys and girls. For all the flexibility of the veranda block, there was an implicit realisation that it could not easily be adapted in these circumstances, as the space along the walls of specialist rooms was required for benches and the installation of equipment such as ovens and sewing machines as well as the creation of storage space for the resources required by these subjects. This condition also reduced the area of the north eastern wall that could be used for ventilation and lighting via windows; certainly the standard use of bi-folding doors was not possible. Access to the rooms was gained via small porches serviced by steps. The restricted fenestration was provided by a series of rectangular windows, 8 x 2 feet which ran from the plate line on both the north eastern and south western aspects, to a point 4 feet above the floor. Not even the pragmatic Mr Bigg could argue that these rooms were based on the open-air principle although one exception was allowed; adjoining the cooking room was a space designated as a cafeteria and this room did feature a veranda and the standard bi-folding doors, possibly an indication that this facility was to be available for the serving of food to all pupils. The relative lack of natural light in the other specialist rooms was compensated for by the provision of at least four electric lamps in each of these spaces while one fitting per standard classroom in the veranda blocks was still considered adequate.[45] ***(*Fig.43)**

Although the veranda block model was not the complete solution to the more sophisticated requirements of an intermediate school, its versatility was such that attempts were made to use its standard features as the principles on which to remodel existing primary school buildings. At Belfast School an older wooden classroom was shifted to a new position, re-oriented and altered so effectively that it did not look out of place beside the new main school block finished in 1938. Twelve years later, the remodelled block was easily enlarged by adding another classroom and cloakroom to the eastern end of the building with minimal need to alter the structure of the

[44] ANZC, CAMQ, CH564, 3253, box 67, RS-57-1
[45] Ibid., RS-57-2

existing roof.[46] At Linwood North in 1937, an attempt was made to introduce more light and air into two blocks which were judged to be still structurally sound, the original wooden block built in 1908 [47] and the 1914 brick building that had already been altered as part of the attempt to reduce the potential danger to pupils and teachers in the event of a major earthquake. Yet, in neither of these cases was the result aesthetically successful. The holes punched into the fabric to allow the insertion of glazed verandas and clerestory windows produced a result that lacked the clean lines of the genuine veranda block model, while the extent to which the working environment for pupils and teachers was improved is hard to quantify.[48] These solutions looked exactly what they were, *ad hoc* and cheap attempts to prolong the life of buildings which had outlived their usefulness and acceptability. **(Fig. 44)**

As a standard classroom block, however, the Penlington/Bigg solution won widespread approval. In March 1939, the Minister of Education, Peter Fraser, opened the new veranda block school at Okains Bay. His reported remarks, showed that he made his standard avuncular speech for these occasions, but he also claimed that

> …the Canterbury Education Board had led the way in school architecture with their open-air schools and bright coloured classrooms. The Canterbury type of school was being built all over New Zealand. He wanted schools which gave the maximum fresh air and sunlight.[49]

There is some evidence to suggest that Fraser's claim was more than mere political hyperbole. In 1943, *National Education* featured a photo essay titled 'School Buildings: Their own monuments.'[50] The schools illustrated carried the implicit approval of the NZEI as to their quality and included examples of veranda blocks from a variety of schools and board jurisdictions, including Blenheim, 1936 (Wellington Education Board), Parnell, 1936 (Auckland), Rangiotu, 1942 (Wanganui), Granity District High School, 1939 (Nelson) and Gisborne Intermediate, 1940 (Hawke's Bay). With the end of the war in prospect, the Department of Education published a wide-ranging review of the state of education in New

[46] Belfast School, ANZC, CAMQ, CH564, 3253, box 42.
[47] In 1932, Sayers had been uncompromising in his criticism of this building, claiming that although there was ample fenestration, most of the windows faced south and that 'utility waits on appearance, in this case to an absurd extent.' Sayers, thesis, p.92.
[48] This building was still posing problems in 1955. Classroom conditions were judged to be so gloomy that on one occasion, a whole class was sent home as a protest. The Board was far from impressed at this action taken 'without their knowledge'. CEB Minutes, 23 September, 1955, p.588. However this mild rebellion may have paid off as the Board later agreed to install fluorescent lighting in the two most poorly lit rooms. CEB Minutes, Building Committee Minutes, 22 October, 1955, p.705.
[49] George Armitage's record of Fraser's speech found in the Armitage Papers, MB, 312, Item 108.
[50] *National Education,* July 1943, between pages 166 & 168.

Zealand that also looked forward to the issues facing future policy makers. Although attributed to the Minister, Rex Mason, the text was almost certainly the work of Dr Clarence Beeby, the Director of Education.[51] Sprinkled throughout this publication were photos of various school buildings that were obviously seen as exemplars of the then current best practice. Among them, was one captioned 'A Native School in the Rotorua District' (at that time under the jurisdiction of the Department of Education), that although suitably embellished to reflect the cultural background of its pupils, was undoubtedly based on the concept developed by Penlington and Bigg.[52] Another illustration titled 'A Typical Class-room Block' was the standard Canterbury plan down to Bigg's signature trellis work.[53] Other sources also confirm the primacy of the Canterbury model with photographic evidence: as late as 2005, Tawa Flats School (Wellington), featured a well maintained veranda block with a comment by the author of the school history that the relevant building was 'still an integral part of the school today.'[54] In 1976, Coatesville School (Auckland) had chosen its veranda block as focal point for group photographs for its jubilee.[55] Independent schools also used the CEB design: in 2011, Saint Joseph's Catholic School in Ashburton still featured such a building constructed in the days before Catholic schools were integrated into the state system. In short, Fraser was correct in asserting that the Canterbury 'fresh-air' model was very much part of educational architecture on the national scene.

Perhaps the ultimate indicator of the success of this model is the lack of major complaint made about these buildings, certainly there is very little evidence of critical correspondence on this subject in the Building Committee minutes over the two decades that such buildings were the standard Board solution to the demand for new classrooms. A minor point of contention was the problem of glare, especially through the clerestory windows when the winter sun was relatively low in the sky. Most schools apparently solved the problem themselves, obscuring the glazing with white or green paint which cut out direct sun but still admitted some light [56] although it was not until 1954 that the Building Committee recommended that the fitting of appropriate curtains

[51] H.G.R Mason, Education *Today and Tomorrow,* Department of Education, Wellington, 1945.
[52] Ibid., p.55.
[53] Ibid., p.23.
[54] Pamela M Edmonds, *Tawa Flat School,* published by the author, 2005, p.7.
[55] Coatesville School Committee, *Coatesville School- Diamond Jubilee*, published by the authors, 1976, pp.30-31.
[56] For example, among the schools still featuring the veranda block in 2010/2011, Ashburton Borough, Christchurch East, Papanui, South Brighton, Wharenui and Christchurch South Intermediate all had clerestory windows completely or partially screened or painted over.

should be included in the original contract prices for rooms with clerestory windows.[57] The Auckland Education Board's standard classroom also featured similar windows and its more expensive solution was to construct a four feet horizontal overhang above the clerestory line which it was claimed allowed 'direct sunlight into the room at the proper time of day and year.'[58]

Despite the problem of glare, an inconvenience that was easily fixed, teachers appreciated the veranda blocks. A reaction to the removal of the Gothic pile at Christchurch East, and its replacement with the veranda block in 1936, was that 'the new environment with its bright rooms, improved heating and ventilation, and the sunny aspect was immediately reflected in an improvement, physical and mental, among the pupils.'[59] A teacher of infant classes at Elmwood from 1949-55, worked in a veranda block built in 1936, and she recalled that the clerestory windows were already painted over so there were no problems with glare. She found the room a pleasant environment in which to work. The bi-folding doors were opened whenever possible and this assisted in evacuating the room at intervals and lunchtimes as well as for the short exercise periods at other times during the school day. The veranda steps were useful as seats at lunchtime and also for outside assemblies.[60] These positive sentiments were shared by George Dryden, whose teaching career included experience in several Christchurch schools and eventually headmasterships at Paparoa Street and Elmwood Normal Schools as well as a stint in the inspectorate. He saw the main advantage of the model as the flexibility of the veranda space which could be used as an extra teaching area where a small group could 'practise a play and still be under the teacher's eye.' This space was invaluable on a wet day when it could be used as an undercover play or lunch area and was also useful as a means of evacuating the room in the event of an emergency.[61]

The single storey timber blocks engendered a feeling of security in an environment that was sensitive to the dangers of earthquakes after the Murchison and Napier events, and had the added advantage of being cheap to build by using local timber and requiring little in the way of imported materials. The degree of standardisation possible was enhanced by the flatness of most building sites in Canterbury schoolyards, thus obviating the need for expensive 'one-off'

[57] This recommendation was in response to a request from the Heaton Intermediate School Committee. CEB Minutes, Building Committee Minutes, 20 September, 1954, p.472. These rooms were not standard veranda blocks but the configuration of clerestory windows was similar.
[58] A.B Miller, School Building Today, *Education,* September 1949, Department of Education, p.35.
[59] C.G Boyce, headmaster (1925-40) quoted in Christchurch East School, *In Celebration of 125 years,* Christchurch East School, Christchurch, 1999, p.5.
[60] Interview, Merle Gregor.
[61] Interview, George Dryden.

engineering designs for foundation work. Whereas in the 1920s, the Board had preferred to use its own staff to carry out its construction programme, it became obvious to the Building Committee that the depressed conditions in the 1930s could be turned to their advantage if local firms were invited to tender for the work. The similarity in the veranda block plans also advantaged local builders who could submit tenders using their expertise gained from previous experience in bidding for CEB contracts. The result was a very efficient process, and there is little doubt that the Board, and ultimately the taxpayer, benefitted from the use of a market approach rather than assuming that it was necessarily cheaper to undertake the construction using labour organised by the Board's permanent foremen. Even in 1938 when there was much more work on offer than earlier in the decade, the tendering process was resulting in very competitive pricing. For example, for the first contract for Christchurch South Intermediate, the three veranda blocks and the administration area, eight prices were submitted; the interested firms included those well on the way to becoming established as reputable local businesses such as Charles Luney, Peter Graham and Son and T.L. Marriott. The highest tender was £17,922; the mean of the eight prices was £16,737 while the lowest submitted price was £14,930. As was the requirement, the prices were duly submitted to the Department which saw no risk in accepting such an apparently low tender and the contract was completed on time by the builder, J.L. Wilkins, who was still prepared to quote for the specialist classroom contract a year later, although in this case his tender was the highest in a three horse race.[62]

The lasting evidence of the success of the veranda block is that, as of 2010, the model still graced many schoolyards in Canterbury, some, for example, at Ashburton Borough, **(Fig 45)** Linwood North, Shirley Intermediate, South Brighton, Riccarton and Ilam, were superficially unaltered and well maintained. Others, such as Waimataitai, Papanui and Wairakei had their clean lines distorted by the need to provide ramps to ensure accessibility for the more socially inclusive schools of the late twentieth century although the buildings still apparently functioned broadly as they were designed. At Lyttelton Main, the verandas had been walled in to create extra inside classroom space, while at Wharenui and Waltham, the visually intrusive evidence of heat pump intakes indicated an updated heating system in otherwise unaltered buildings.

In December 1950, the Canterbury Centennial year, a procession marking '100 years of progress' was staged. As well as the obligatory squads of marching girls and brass and pipe

[62] All details regarding the Christchurch South Intermediate tenders and contracts can be found in ANZC, CAMJ, CH191, box72/a, record 1422/35.

bands, many local organisations had sponsored and created floats to advertise their respective contributions to the growth of the province. The CEB chose to highlight the development over the century by displaying two large models; the first labelled '1850' was a Gothic Revival structure given an ecclesiastical reference with the pointed windows characterised with stylised crosses. That selected to represent the progress achieved by 1950 was clearly a veranda block. **(Fig. 46)** The message whether conscious or otherwise, was that not only had the secular element triumphed over the religious, but that the transplanted English ideal had been supplanted by a vernacular solution tailored to local conditions. The CEB was clearly pleased with its architect and his designs; in 1947, after an inspection trip to South Canterbury by a group of Board members, a minute recorded their 'appreciation of the excellent design of the buildings … and the splendid work achieved by the Architect and Supervisor of Works in planning and erecting these structures.'[63] However, the Board's loyalty to the architectural model, that seemed to encapsulate an almost perfect response to the needs of the Canterbury district, was soon to be tested.

In 1949, an electorate perhaps impatient with the continuation of wartime controls and showing 'disenchantment with the tired, elderly leadership of the Labour government,'[64] voted the National party into power. The new Minister of Education, the formidable Ronald Algie, aimed to build good quality schools as quickly as possible and adopted a policy of a nationwide standardisation of classrooms; effectively the boards were to build according to the Dominion Basic Plan, a Departmentally-inspired design.[65] The CEB immediately defended its architect, his veranda block and the Board's independence. At a Board meeting in August 1951, it was resolved to inform the Department and hence the Minister that

> The Board expresses regret that the CEB plan adopted and used over the last 15 years, (i.e. open verandah)[66] has been superseded by a standard plan which eliminates the verandah, and substitutes a corridor along the rear of the classrooms…. The present day structure such as at Ilam and Wairakei is accepted as being the best to meet the climatic conditions in this province.[67]

[63] CEB Minutes, 20 June, 1947, p.445.
[64] Michael King, *History of New Zealand,* Penguin Books, NZ Ltd., Auckland, 2003, p.414.
[65] This issue will be considered in more detail in Chapter 6.
[66] In fact the Board had miscalculated the period of the veranda block's primacy. If the first such building is assumed to be Sydenham in 1931, the period of use should be 20 years; even if the first such structure is assumed to date from Bigg's first contract, at Shirley Intermediate, the model had been in use for 18 years.
[67] CEB Minutes, 17 August, 1951, p.452.

In March 1952, Board chairman, S.J. Irwin, visited Wellington to make direct representations to the Minister at a meeting also attended by Departmental Director Beeby, and his deputy. In his report to the Building Committee, Irwin could claim some progress as Algie agreed that for additional accommodation or partial rebuilds for existing schools, the Department would be 'prepared to accept plans of the Canterbury open-air type' for projects of up to four classrooms, with the proviso that these plans would be immediately ready for submission.[68] Algie's price for this concession was that the new urban schools were to be constructed using the Dominion Basic Plan. Yet the controversy refused to die; when opening a veranda block school at Bamford Street, Irwin had deplored the probability that what he described as the 'heritage plan' would be used no more for new schools and had then gone further and announced that 'war is now on between the Canterbury Board and the Minister.' Algie travelled to Christchurch in an attempt to defuse the issue which had the potential to cause embarrassment in Prime Minister Holland's political backyard and at a meeting on July 25, 1952, Irwin was politely but firmly put in his place.[69]

The last example of the use of the 'Canterbury plan' was as part of the rebuilding programme at Hornby Primary School, planned in late 1955 and executed in the following year. The four classrooms were designed in what had become the traditional manner, with the trademark veranda and bi-folding doors on the northern aspect of the building, although in this case there was an innovation in that the staffroom, administration offices and dental clinic were added on to the western end of the block rather than having these services grouped in a two-level administration module.'[70] By this stage the design was almost anachronistic, as buildings featuring brick veneer, and later concrete block, became the standard image of the new schools of the 1950s. However the success of the veranda block remains the story of the way in which two pragmatic Board architects had taken the best features of the open-air rooms of the 1920s, stripped away the more romantic absurdities of the model, and had developed a highly practical and aesthetically pleasing structure that was flexible and relatively cheap to build while genuinely enhancing the educational experience of pupils and teachers who taught and learned inside these buildings. While ultimately becoming a victim of 1950s modernity and the centralising tendency of the Department of Education, the fact that some of these structures are

[68] CEB Minutes, Building Committee Minutes, 19 March , 1952, p.198.
[69] This issue is extensively covered in a verbatim transcript of the proceedings of this meeting. CEB Minutes, 20 August, 1952. The report is a seven page insertion between pages 562 and 563.
[70] The plans for Hornby Primary School can be found in ANZC, CAMQ, CH564, 3253, box 127, RS/132.

still fit for the purpose nearly three generations after their construction is testament to the skill and perseverance of their designers and builders.

Chapter Six. Building for the Baby Boomers.

The return of the nation's servicemen at the end of the Second World War triggered a baby boom that can be defined as those births taking place in the period 1946-1965, when 1.125 million babies were born, over 72 per cent more than in the preceding 20 years.[1] It is probably fair to say that the CEB knew that a tidal wave of five year olds was approaching and that the effect would be felt most in the Board's largest urban area from 1950 onwards. However, as early as 1946, C.S Thompson, the Board Chairman, felt that the accommodation problem in Christchurch had already 'reached saturation point.'[2] After conferring with an official from the Department's Building Branch, he drafted a report that could be seen as a formal challenge to the Board's own Building Committee to respond to the crisis which was forecast to become even more acute. He listed sixteen schools where extra rooms were immediately required, but also saw the need for new schools to service areas that appeared to be on the cusp of an explosion in school-age population; Thompson referred specifically to the need for new primary schools in North Shirley, Ilam and Burnside, all of which featured large housing blocks in the process of construction by both government and private developers.

By March 1948, lack of progress on these new schools prompted the new Minister of Education, Terence McCombs, to visit Christchurch to goad the CEB into action. McCombs was the Member of Parliament for Lyttelton and he visited several schools in his electorate, for example Sumner, Redcliffs and Heathcote, before he turned to the wider problems of the shortage of accommodation in city schools. He was shown possible sites in Mahars Road and Ilam but it was explained to him that difficulties in purchasing suitable land were frustrating the planning process.[3] In response, the Minister verbally authorised applications for compulsory acquisition of the properties whose owners were not prepared to sell.[4] Later in the month, McCombs returned to address a meeting of the full Board and made it plain that he was not satisfied with its

[1] Statistics New Zealand, *New Zealand Now-Baby Boomers,* Statistics New Zealand, Wellington, 1995, p.1
[2] Report to Building Committee, CEB Minutes 16 October, 1946, the relevant document follows p.523.
[3] Details of the Minister's visit to Christchurch schools on 9-10 March,1948 can be found in the CEB Minutes, Building Committee Minutes, 17 March, 1948, pp.97-100.
[4] Under the *Public Works Act of 1928*, central government reserved the right to acquire land by proclamation if the property was required in the public interest and negotiations with the owner had broken down. Compensation to the owner was based on a formula using valuations by government and private valuers. See Russell Davies, *History of Public Works Acts in New Zealand, including compensation and offer-back provisions,* 2002, www.linz.govt.nz/docs/miscellaneous/pwahistory

slow progress in providing new classrooms.[5] He noted that the Department had taken steps to fund the training of more teachers and that it was now the Board's job to provide the necessary facilities in which they could work. The Minister then claimed that the Canterbury District was already short of 75 rooms, 43 of which were immediately needed in Christchurch. He then forecast the requirements for the next four years: 25 in 1949, 37 in 1950, 46 in 1951 and 50 in 1952. The Board's usual excuses were pre-empted when McCombs argued that shortage of architectural staff could be mitigated by hiring private practitioners [6] and that he had been in discussion with the Building Controller and was 'confident that there will be no hold-up' in the granting of the relevant permits to erect. At the end of the meeting, the Board Chairman thanked the Minister and expressed the 'conviction that during his [McCombs'] term of office, the Board would gain reserves of strength and inspiration'.[7]

By 1950, the government had changed, but the new Minister, R.M Algie, like his predecessor, was also frustrated by the seeming inability of the boards to translate allocated government funding into new school buildings during the budgetary cycle for which the grant was made.[8] In October 1950, all education boards' architects were summoned to a conference that was chaired by C.G Ellis, the Department's Assistant Director, Administration and also attended by R.A Widdicombe, the Department's Chief Architect, his deputy and several other officials. The conference was opened by Dr. Beeby, the Department's Director, and he left no doubts as to his agenda.[9] His aim was efficiency and economy and this, he contended, was best achieved by the national standardisation of plans. There was some protest from the architects when it was claimed that the main problems were not of the boards' making. For example it was argued that there was difficulty in getting satisfactory prices from builders and that furthermore, when a contract had been let, the contractor was often slow in starting and it was difficult to keep him on the job until it was finished. However the Departmental officials continued in a critical vein by advising the architects to improve their administrative systems and offering to draw up a uniform document for all boards to use when letting contracts. The Departmental Chief Architect then returned to Dr. Beeby's main argument and contended that the use of standardised plans would expedite their approval by the Department; Widdicombe also advised that Ministry of Works'

[5] The proceedings of this session are covered in the CEB Minutes, 19 March, 1948, pp.134-136.
[6] In 1948, Bigg headed a design team of three draughtsmen and two cadets and was supported by one clerk. *CEB Annual Report,* 1949, p.2
[7] CEB Minutes, 19 March, 1948, p.134.
[8] Cumming and Cumming, *The History of State Education in New Zealand,* p.309.
[9] The conference was held in Wellington on 25-26 October,1950. The report of proceedings, a seven page summary, can be found in the CEB Minutes, Building Committee Minutes, 19 March, 1951. This document follows page 124 in these records; the material in the relevant paragraph is based on this source.

structural engineers should be used for advice on site and foundation conditions rather than boards' building departments attempting this specialised work. The subtext of the meeting was probably not lost on the Board members or their architect; their independence was being further eroded.[10]

As an illustration of the problems that were bedevilling the CEB it is pertinent to consider an example of a project that took longer than anticipated. As noted above, the CEB Chairman had, in 1946, recognised the need for a new school in Ilam. The first step, purchasing the land, threatened to stall the project well before the design stage. The Board had approached the owners of a 30 acre block in an attempt to purchase a 6 acre section but by July 1947, lack of progress in agreeing on a sale led to the Board seeking the Department's permission to take the land by proclamation. By now, however, another buyer, the Canterbury University College, had expressed an interest in the whole block in preparation for the eventual re-siting of the university at Ilam. Finally the Board managed to acquire a four acre site and entered into negotiations with the University Council for the loan of a further two acres to extend the playground, a move that was a medium term solution at best, as the new owner made it plain that the land would have to be returned when required for university purposes, probably in the 1960s. [11]

Bigg, meanwhile, had produced a plan, which while based on two standard veranda blocks with the provision for a third, was innovative in that while the wings were parallel they were stepped back and linked by toilet blocks that also featured verandas, running at right angles to the classrooms.[12] **(Fig. 47)** The administration area was the now familiar two storey section of an otherwise single-level classroom block. On 7 October, 1948, the Department approved the commencement of working drawings for the eight-classroom school[13] and on 6 December, the Building Controller gave his permission for planning to continue. On 3 March 1949, the Department allowed the project to go to tender and an undated memo from Bigg noted that of the four tenders submitted, John Calder Ltd. was the lowest with a price of £29,660. On 7 April, the Department expressed reservations about the design, specifically the small library room which would receive no sun, and the terrazzo surface on the boys' toilet floor. Bigg's revisions were

[10] Almost immediately after this conference, the Department removed yet another of the boards' responsibilities when it terminated their right to negotiate for land and handed this task to the Ministry of Works. CEB Minutes, 11 December, 1950, p.640.
[11] The material in this paragraph is based on the correspondence from the CEB file on the erection of Ilam School, ANZC, CAMJ, CH191, box 152
[12] The drawings for Ilam School are at ANZC, CAMQ, CH564, 3253, box 143, RS/138.
[13] Details of the of correspondence referred to in this paragraph can be found in ANZC, CAMJ, CH191, box 152.

accepted and finally on 18 May, 1949, the Department approved the grant, an action that was the effective signal that construction could begin.

The school was not opened until September 1950, but then further significant problems emerged. Little work had been done on levelling and draining the school grounds and they showed an alarming propensity to flood after rain. Applications for a grant to ameliorate the problem went as far as the Minister, Algie, whose letter of 28 November, 1950, to Irwin, the Chairman of the CEB, was an effective rebuke, despite the diplomatic language used, in which the Minister referred to the situation as 'difficult and disappointing'. To make matters worse, the installation of the heating system was not part of the original contract. A.J Jamieson's tender of £2,651 was successful, but by 9 July, 1951, the work had still not been completed although the Board did organise 'temporary' heating which presumably offered some relief in the winter months. The CEB had also underestimated the demand for places in the new school and it soon became apparent that more accommodation was required; on 31 October, 1951, the Department approved a grant for three prefabricated rooms as a temporary measure until the third veranda block of another four classrooms could be put out to tender on 5 May, 1952. [14]

The question should be asked therefore, why did a project deemed urgent in 1946, take nearly seven years to complete to a point where the school was fulfilling the needs of the local community? The problems that occurred were not unique to the establishment of the Ilam School as they were evident in many cases in the Canterbury District and quite possibly were replicated on a national basis. The Board found the purchase of suitable sites difficult in the immediate post war years as most potential vendors realised that economic and population growth created a sellers' market, although in this case the sticking point appeared to be the attitude of the owners, the Misses Neave, who objected to any development that ruined the pastoral view from their home at Okeover.[15] The Board and the Department were reluctant to resort to compulsory acquisition, but when the decision had been made, the process still took several months to complete. Even without this complication, the bureaucratic barriers to speedy progress were significant; the Board's Building Committee, the Department's Chief Architect and the Building Controller all had to approve the plans generated by the Board architect and draughtsmen. There is no doubt that mistakes were made by Bigg, for example his carelessness

[14] Ibid.
[15] Jennifer Mayne, *Ilam in the nor'west: Ilam School and district: Ilam School 50th Jubilee,* Ilam School Jubilee Committee, Christchurch, 2000, p.45.

in neglecting proper preparation of the site, an omission that possibly resulted from the sheer volume of work facing his small team over this period; in recognition of this, the Board had approved the hiring of private practitioners for the largest contracts of the immediate post war period, the intermediate schools at Heaton Street and Linwood.[16] In the case of Ilam, however, the Department had also been somewhat to blame in discovering problems with the plan after they had approved it to go to tender. In this context, the Department's decision to provide acceptable, pre-approved architectural drawings could be seen as a constructive attempt to streamline the process; the shortage of classrooms was seen to be critical and direct action was required to address the problem.

The Department's initiative, published in December 1951, was a document which combined a new building code for primary schools with some detail about the standardised Dominion Basic Plan.[17] In an introduction it was noted that the code

> defines for the convenience of Education Boards the kinds and areas of rooms and the standards of fixed amenities which the Department will approve for new primary schools and more major extensions to existing schools.[18]

However there was a warning that 'until the present shortage of classrooms has been overcome… that the Code will not apply to existing schools.'[19] It was stated that there was a complete set of working drawings available,[20] and in an attached appendix, a sketch plan and an artist's impression of the way in which such a school could be configured were provided. (**Fig. 48**)

The new code was distributed, possibly by design, just before the long Christmas break. However the holidays did not improve the CEB Chairman's attitude to what he saw as another Departmental attempt to subvert the legal powers of education boards as laid down in the 1877 and 1914 Acts. In a statement to Board members,[21] Irwin conceded that the new regulations did at least include a 'satisfactory scale of lavatory accommodation' but he had several specific complaints, for example the lack of a headmaster's study for schools of fewer than five rooms, but his overriding concern was that the new code was 'another step in the direction of

[16] CEB Minutes, Building Committee Minutes, 16 June, 1948, p.307.
[17] Building Code for Primary Schools, 1951, ANZW, AAZY, W3901, box 658.
[18] Ibid. p.6.
[19] Ibid.
[20] Ibid., p.8.
[21] CEB Minutes, 22 February, 1952, p.3&4.

bureaucratic control,' by which he meant presumably, the growing power of central government authority at the expense of the locally controlled education boards. Such was his concern that he had consulted the CEB's solicitors, obviously hoping for an opinion that the Department's action was *ultra vires*. The considered legal opinion did allow that

> Too much control could reduce Board members to nonentities and lead to serious decline in the quality of Board personnel with grave consequences to education. It could rob society of individualism.

The view was then advanced that the 'Board has enough ground upon which to make a stand if in its wisdom it thinks that this is in the best interests of education.' The Board, resolved to approve the sending of its chairman to Wellington to take the matter up with the Minister.[22] Irwin returned with an understanding that in some circumstances the veranda block could continue to be built but had to concede that the DBP must be used for larger schools.

The first two projects built to the Dominion Basic Plan in the Canterbury District were the new Christchurch suburban schools at Mahars Road, later re-named Mairehau, and Paparoa Street in the suburb of Papanui, both of which were commenced in 1952. In both contracts, the Department's set of working drawings were used, the only substantive difference being Sheet 1 in the set of 10, where the Board architect had provided a site plan showing the configuration of the new classroom blocks drawn to scale. For example, at Mairehau, the two blocks of classrooms were aligned as wings centrally anchored by the administrative core. (**Fig. 49)** At Paparoa Street, initially a smaller school with a four room senior block and a two room infant block, Bigg had chosen a parallel alignment although the latter was offset in a manner that would not impede the larger block's exposure to the morning sun. As Mairehau was built on land known to be affected by layers of peat, a generic diagram was attached showing the degree of piling required. However the rest of the working drawings for these schools were identical and, if necessary were manually amended. For example the code prescribed that all classrooms were to be 26 x 24 feet, although in a school with more than two infant rooms, the third room was bigger, 30 x 24 feet.[23] As the DBP was based on a four room module of the standard sized rooms, the plan was adapted by manual alteration, the printed room dimension being crossed out and the amended measurement shown in red ink. **(Fig.50)** A similar method was used to illustrate the allowances for administrative space. As Paparoa Street was a six classroom school, the scale allowance for the headmaster's study was 100 square feet whereas Mairehau, as a

[22] This was the immediate background to Irwin's interview with Algie when the former defended the veranda block. See Chapter Five, p.101-102 of this thesis.
[23] Building Code for Primary Schools, 1951, p.2.

school of nine classrooms, justified a relatively luxurious 150 square feet.[24] The Paparoa Street plan simply referred the user to the first sheet in the set of working drawings, a procedure repeated for any variation allowed and perhaps leading to an observation that the standardised plan may have reduced the workload at the Board's architectural office, although this may have been at the expense of an added complication for those contractors submitting tenders.[25] However in other areas the time savings generated for the Board and contractors were more definite, for example the generic isometric drawing showing typical sections of the roof support structure and the framework for the walls offered precise measurements and obviated the need for detailed specifications in a separate document.[26] **(Fig. 51)**

Fenestration was not specifically mentioned in the code because the prescribed system was illustrated on the drawings of the elevations with a key to the relevant window joinery that was displayed in pictorial form at the bottom of the page with a space for the number of each item required, a format which in this case must have made the task of the quantity surveyor much simpler**.** Approximately 80 per cent of the northern elevation of the standard classroom was glazed: the double external doors with fixed panes, the clerestory windows with a combination of fixed and top-hung sashes, Below this arrangement, four double units featured three-light sashes independently and vertically hinged. Although each of the major types of window joinery was different in size, the glazing of these units was based on a pane of uniform dimensions of 22 x 24 inches. **(Fig. 52)** Natural light was still the major form of illumination; the 1930s' allocation of one electric light fitting per classroom had not changed although the DBP did allow a single power point and a speaker point to facilitate the broadcast of approved radio programmes relayed from a set in the headmaster's office.

A major difference between the DBP and the Canterbury model was that the veranda, used for communication between rooms, effective extra classroom space in appropriate weather conditions and undercover lunch and play areas on wet days, had disappeared to be replaced by a six feet wide corridor on the southern side of each wing. The last vestiges of the open-air revolution had also gone with the removal of the bi-folding doors from the northern wall of the

[24] Ibid p.9.
[25] The relevant sets of drawings are Mahars Road, ANZC, CAMQ, CH564, 3253, box 177, RS/181, and Paparoa Street, ANZC, CAMQ, CH564, 3253, box 245, RS/231. Unless otherwise specified, all material on DBP classrooms is sourced from these sets of generic working drawings.
[26] It should however be noted that although Bigg and his team provided one-off sets of plans for veranda blocks, the separate specification documents were identical. These structures must have been equally easy for contractors to price. Compare, for example, the specifications for the Beckenham Infant Block, 1938, ANZC, CAMQ, CH662, 3008 box 1, bv, with those for the Hornby Infant Block, 1939, ANZC, CAMQ, CH662, 3008, box 3, b2.

classroom block. A useful development was that each classroom had a walk-in cupboard, created by the utilisation of a module of 26 x 5 feet between rooms, an area divided in half so that one room had its 65 square feet storage area at the front while its neighbour had a similarly sized space at the back, a configuration made possible by the basic plan that was designed in classroom units of four, or in a situation like Paparoa Street, where the expected roll did not immediately justify two wings of four, a two room block could be provided that could be easily increased to the standard size when required.

The new schools certainly looked different from those constructed according to the Canterbury design. Bigg's concept of a double storey administration area inserted into a long line of single level classrooms had provided some relief from the potential for visual monotony but the Departmental planners judged it more cost effective to use lower profile flat roofed modules which could be attached to either the eastern or western end of the classroom block, or, alternatively, could link the two wings. Perhaps the greatest visual difference was the disappearance of the ubiquitous weatherboard cladding that lingered only in the eastern and western gables of the new blocks. All other elevations featured brick, a choice which did not signal a lack of concern should another major earthquake occur, as this was not a return to the use of this material in a load bearing capacity, but only in the form of a veneer which was well supported by timber framing. In fact the CEB had been debating an alternative to timber cladding for some years[27] as stocks of native woods, for example rimu, were running down in the face of rocketing demand from the post war building industry, while the supply of exotic soft woods, from trees planted in the depression years, did not come on stream in great enough volume until the mid and late 1950s. Even then, the alternative uses of feeding the paper mills at Kawerau and Kinleith, or exporting the product as boards and logs, would ensure that the price of such timber was never as low as the local building industry had hoped.[28] The other advantage of brick veneer was the much lower maintenance cost as the periodic need to repaint weatherboards was avoided although window joinery was still timber. Six decades later, the DBP blocks at Mairehau, Paparoa Street, Burnside and Banks Avenue, still looked relatively fresh, even in comparison with the later generation of buildings constructed from unpainted

[27] The CEB had experimented with aluminium sidings for classrooms at West Spreydon, CEB Minutes, Building Committee Minutes, 15 August, 1951, p. 528. In 1952, the Headmaster reported difficulties with acoustics, ibid, 18 June, p.376.
[28] *NZOYB,* 1955, pp.514-515, 522-523, 532-533.
Ibid.,1960, p.567, 570-571.

concrete block although it must be conceded that at least in some cases, the concrete roof tiles had been replaced by the use of corrugated iron. **(Fig.53)**

It is difficult to offer meaningful comment about the extent to which central planning led to cheaper and faster building in the Canterbury district. Only three firms showed interest in the Paparoa Street job and the spread of prices was uncannily small; the contract was let to Paramount Builders with a tender of £32,328, while the other two prices were from Progressive Builders (£32,372), and Fletcher Construction (£32, 911). [29] Burnside School generated interest from eight contractors, and the lowest, Leader Construction's price of £39,500, was only 1.8% less than that advanced by Husband Brothers,[30] while the Banks Avenue School attracted six prices and this time the contract went to Fletcher Construction, although the variation from highest to lowest was much wider at eleven per cent.[31] The building process could be speedy: the contract for Paparoa Street was virtually completed in four months and the school was opened in early February 1953, although in this case, the contractor's desire to move on to the next job without attending to such tasks as backfilling trenches excavated for sewer and storm water lines prompted a terse letter from the Christchurch Drainage Board Engineer threatening that unless the task was started within three days, another firm would be employed to complete the job, a cost that would be charged against the original contractor.[32]

The Dominion Basic Plan left a lasting imprint in the schoolyards in cities and larger towns in the Canterbury District as well as throughout New Zealand, but the reign of the centrally dictated design was to last for barely five years. Algie and Beeby were disappointed that, on a national basis, the system was not really delivering the hoped for cost savings. The Department looked abroad for guidance and undertook what must have seemed a considerable investment at the time, of sending three senior officials on a two month tour of England. The research team comprised C.G Ellis Assistant Director, Administration, G.V Wild, Chief Inspector of Post-Primary Schools and R.A Widdicombe the Departmental Chief Architect. Algie included an extensive survey on their findings in the Departmental report covering the events of 1954.[33] He explained the ways in which the English Ministry of Education had managed to reduce the cost of primary school buildings without sacrificing quality and that the method most relevant to New

[29] CEB Minutes, Building Committee Minutes, 20 August, 1952, p.512.
[30] CEB Minutes, Building Committee Minutes, 7 July, 1954, p.568
[31] Ibid., 18 August, 1954, p.710.
[32] Scott to Paramount Building Co., ANZC, CAMJ, CH205, box 25/u, 12474/52, 2 March, 1953.
[33] *AJHR*, 1955, E-1, pp.15-24.

Zealand was to plan schools to avoid wasting space. Specifically it was realised that circulation areas like corridors and lobbies occupied from 20 to 27 per cent of the floor area of DBP buildings, and if other 'ancillary' areas were included, i.e. offices, cloakrooms, lavatories and stores, only 40 to 45 per cent of school buildings was taken up in teaching space.[34] Eliminating offices and lavatories would have been a radical move indeed but the new Departmental model, a sketch of which was enclosed in the Minister's annual report, compared the Dominion Basic Plan with the 'New Plan' that deleted the southern corridor and reduced the circulation space in the toilet /cloakroom area. It was recommended that the latter should be immediately adjacent to the classroom and should be directly accessible from the teaching area. (**Fig. 54)** The advantage of this concept was that although the average area of the whole building per child would be reduced from 33 to 24 square feet, the space savings could enable the classroom to increase in size from 684 square feet (including storage) to 768 square feet, an increase in the area of the teaching space of 12 per cent.

The Department then moved to win over the major stakeholders; first at a meeting of the Education Boards' Association,[35] then at a special conference, chaired by Assistant Director Ellis, of board architects and secretary managers in Wellington on May 25, 1955.[36] A year later, Director Beeby addressed the NZEI Annual General Meeting of 1956 in an attempt to sell the concept directly to the teachers.[37] He admitted that the DBP had been shown to raise 'certain difficulties' as standardisation had implied putting 'their originality into pawn', and that even with this sacrifice, the system did not prove to be 'economical.' The Department had, therefore, devised a new protocol that while creating savings would also give boards 'power to vary plans according to individual needs.' A new building code for primary schools would be promulgated based on the concepts introduced in the 'New Plan'; when published in the following year; this heralded a radical change in the way in which buildings could be planned.[38] Whereas the 1951 regulations had effectively been tight prescriptions in terms of design and even materials to be used, the new code prescribed only minimum sizes and standards for class rooms and ancillary rooms. However, board architects could, if they wished, exceed these allowances as long as the

[34] Ibid., p.17.
[35] This meeting was held on 10 May, 1955. CEB Minutes, Building Committee Minutes, 13 April, 1955, p.248. The Education Boards' Association originated in 1916 as forum for the various Boards to meet and share views. In 1952, the association was formalised with a constitution and in 1976, the first full-time secretary was appointed. Nimmo, p.3.
[36] Leonard Butcher, the Board Secretary Manager, and Bigg, attended on behalf of Canterbury and their report to the CEB's Building Committee was dated 30 May, 1955. CEB Minutes, Building Committee Minutes, p.360.
[37] The summary of the Director's Speech appeared in *National Education*, 1 June, 1956, p.100.
[38] Primary School Buildings Manual, 1956, ANZW, ACHX, 8731, W5000, box 2.

total cost of their design did not exceed an allowed maximum overall contract cost that would be determined by the Department. This calculation would be an accounting exercise whereby the permitted expenditure on the project would be expressed as a 'cost place model' based on the number of children who would attend the new school multiplied by the average school building costs of each geographical area expressed as a monetary figure per pupil. These two constraints, i.e. the minimum standards and maximum costs, were termed the White Lines, parameters between which architects could manoeuvre.[39] An advantage for individual schools built under this policy would be that any savings generated by successful tenders under the cost place figure would be retained by the Board to spend on 'educationally significant' improvements at the school.[40] The Director noted that a trial had already been sanctioned and that three schools based on the new model were in the process of construction.[41] He then announced a new consultative process; he wanted the senior inspectors to set up regional committees of teachers to advise on the design of the new schools. However this charm offensive was not immediately successful. At the meeting of the Executive of the NZEI held in January 1957, the Department was criticised for its tardiness in setting up the promised teacher advisory committees, the 'new plan' as revealed in the minimum standards of the 1956 code was thought wanting, for example there was too little space in the 'crush areas' outside the toilets, and a resolution was adopted expressing 'its disapproval of the new school from both the aesthetic and functional points of view.'[42]

The Department had already started the campaign to mould professional opinion. In the Departmental periodical, *Education,* G.V Wild regaled readers with a review of his visit to England, the findings from which were the basis of the concept of the new schools, and then claimed that the expected savings should make it possible to 'agree to a Hall in each new intermediate school.'[43] He also tried to popularise the recommended model by calling it the 'exploded' concept whereby, 'a school of more than four rooms may be divided into sections connected by staff quarters or just by a path' because it was important to avoid the 'separation of parts,' which, for example, tended to segregate the infant rooms from the rest of the school.

[39] Specific examples of the way in which the White Lines system was applied are provided later in this chapter, see pp.116-117.
[40] For example, the Department's analysis of the costs of the 1958-59 contract for a new block at Riccarton revealed projected savings of £781 which were to be spent on a 'small library'. ANZC, CAMQ, CH690, 2261, box 25, 3 October, 1958.
[41] *AJHR*, 1955, E-1, p.20. The schools involved were in the Auckland, Hawkes Bay and Wellington districts, all of these boards had volunteered 'with celerity' to take part in the trial. There is no record of such early enthusiasm from Canterbury.
[42] *National Education*, March 1957, p.54.
[43] G.V Wild, New School Designs, *Education*, School Publications, Department of Education, Wellington, November 1955, pp.29-39.

However, he hastened to assure those by now suspicious that they were being led to a return to the recently proscribed world of standardisation that this approach was not in any way compulsory.

The increased demand for new schools in Christchurch, generated by the continuing rapid growth in new housing areas in the north eastern and north western parts of the city, would present the CEB with its opportunity to work within the context of the new order. Glenmoor School in Philpotts Road had been planned to take the pressure off nearby Mairehau and the delays were fairly typical of those experienced in Christchurch in the 1950s.[44] The land was swampy, and in July 1955 the CEB Secretary-Manager advised the Director that at least 4000 cubic yards of fill would be necessary to render the site viable. Negotiations with the vendor were drawn out and the land was not acquired until April 1958. The site was just outside the city limits which meant that the City's sewerage system was not available without an expensive connection and in the short term, a septic tank had to be installed to enable the opening of the school. The upshot was that a project planned in 1955, did not open until February 1959. The requirements of White Lines planning were now evident; the analysis of the lowest tender, supplied by John Calder Ltd, shows the Department's approved number of cost places, 313, and the tender amount before approved extras, for example earth works and floor coverings, of £95.380 per place [45] i.e. under the Canterbury cost place figure of £96. However, Bigg did not rise to the challenge of designing an 'exploded' school, in fact in terms of configuration, the two wings, each of four classrooms with the administrative unit and dental clinic added to the senior block, and the infant mistress' office attached to the infant block, the footprint of the school showed that the CEB architect had not moved on from the segregated straight lines of the Dominion Basic Plan.[46]

The possibilities of the new concepts of space saving were, however, diligently applied. The southern corridor and the walk-in storage cupboards had been deleted while the area taken up by toilets and cloakrooms had also been reduced. The trade-off had been the creation of a basic classroom which had grown in size to a 32 x 24 feet rectangle. As a consequence of this increase, each classroom was now provided with two electric lights although there was still no

[44] The file relevant to the establishment of this school is ANZC, CAMQ, CH690, 2261, box 11.
[45] The expression of cost places in a mixture of imperial units and decimal places is an interesting precursor to the reform of the New Zealand monetary unit in 1967.
[46] The plans for Glenmoor School, originally known as Philpotts Road School, are included in ANZC, CAMQ, CH564, 3253, box 205. The analysis of the planning for Glenmoor School is based on this set of drawings.

provision for artificial illumination above the blackboard. In recognition of the notion that primary education in the 1950s could include activity-based learning and that such an approach could be messy, the southern wall of the room included a sink set in a linoleum-topped bench. The loss of storage from the excision of the walk-in shelved area from the DBP design had been partially mitigated by the provision of a cupboard along the south wall as well as a moveable storage unit, mounted on castors. In the rooms designated for infants, a series of pigeon holes were provided along the north wall under the window sills of the casemented sashes. The classroom had a stud height of 11 feet and the roof line, with a shallow slope from the ridge of only 13 degrees to the soffit, required less structural timber than the DBP. An innovation was the use of longitudinal trussed purlins fabricated from light steel webbing that provided support for timber joists to which a Pinex soft board ceiling was fixed.

As for the DBP, the first sheet of the working drawings comprised a site plan with a scale sketch of the buildings.[47] In a further sheet, a basic four-room design was provided and any variants were noted in red ink. (**Fig.55)** However, now that Bigg had a choice as to materials, the tiled roof of the DBP had given way to corrugated iron, the flat roofed toilet areas to malthoid [48] and, most obviously, the brick cladding had been replaced by concrete blocks. The use of this product had been discussed as early as 1951, when a member, J. McDougall, had made a statement in a Board meeting, in which he claimed that the use of a standard block of an equivalent size of six bricks, would necessarily be cheaper to lay, would be maintenance free, and if suitably reinforced, the two- core model would also provide some defence against earthquakes. He claimed that 'in the Detroit area of the United States, practically every school, factory and church' featured their use.[49] In the context of schools in Canterbury however, the product may have been cheaper, but if left unpainted, the external view smacked of the dreariness of a cheap warehouse. Time has done nothing to confer a patina of respectability; the surviving examples of bare concrete block construction continue to disfigure schoolyards with their unremitting shabbiness. **(Fig.56)** Yet, if this surface was painted regularly, as at Kendal School, the effect can be pleasingly fresh.[50] Bigg appeared to display an open mind about the

[47] See for examples the set of drawings for Brookside Terrace School, later renamed Aorangi, ANZC, CAMQ, 3253, CH564, box 381, R/S 438.
[48] A felt-like material based on wood fibre, saturated and coated in bitumen and dusted with a fine coat of sand. www.tremco.comau/docs/techsheets/malthoid%20Roofing.pdf
[49] CEB Minutes, 19 October, 1951, p.445. He recommended that the blocks should be 8 x 8 x 14 inches (203 x 203 x 406 mm.)
[50] The varying appearance of the concrete block schools by the second decade of the twenty-first century is almost certainly a consequence of Tomorrow's Schools in 1989. Prior to this date, the CEB apparently made no allowance for painting this product, as a powerful reason for choosing this material was the argument that it was maintenance-

issue of cladding and in 1959, he reverted to the standard red clay brick veneer for the five room wing at Riccarton; possibly this was due to a concern to match the appearance of the DBP building completed six years before, although in the same year, in the generic plan for the new school at Grantlea, in Timaru, a red ink amendment noted that brick would replace the concrete block originally specified.[51]

As later new schools of this model were planned, the specifications were changed to 'Summerhill stone', a concrete product which was somewhat longer and thinner than the standard clay brick, and one which could be moulded to present a chipped or rusticated appearance while being pre-coloured to order. Isleworth School, built in 1961, featured this embellishment and although the pinkish hue used may not have been to all tastes, the general appearance of the school fifty years later, compares well with the institutional monotony of the first White Line developments. Two schools built concurrently with the Glenmoor project, Briggston and Aorangi, were based on the same concept and materials. However, unlike Glenmoor, they were built in stages and Briggston is an example of the way in which the flexibility of the White Lines system could be utilised to advantage. [52] The first contract, started in 1958, was for only four classrooms and an administrative block joined to the classroom wing. Under the DBP, the new school would not have been eligible for a head teacher's office, or any storage place for books, and the staffroom would have been limited to 150 square feet.[53] Similarly, the 1956 code failed to allow for a dedicated space for the head teacher or even a designated book storage area in the small administration block for schools with only four teachers; a staffroom was permitted but the size was prescribed as only 100 square feet.[54] However these were minimum standards and by saving money elsewhere in the project Bigg managed to allow for a head teacher's office (100 square feet), a book store of 90 square feet and a staffroom of 210 square feet.

The second contract for Briggston, let in 1961, added a four classroom room infant block and two further rooms to the existing wing. Bigg had finished the eastern end of this block with rusticated boarding rather than permanent materials in anticipation of this addition, a measure

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free. Once schools became self managing, school committees were free to make their own decisions about the maintenance of their buildings.

[51] ANZC, CAMQ, 3253, CH564, box 119, RS/104.

[52] The plans for the Briggston contract can be found in ANZC, CAMQ, 3253, CH564, box 4.

[53] Building Code for Primary Schools, 1951, pages 9&14.

[54] Primary Schools Building Manual,1956, ANZW, ACHX, 8731, W5000, box 2 ; this protocol prevailed until the implementation of the 1970 code.

which probably also helped to make a saving on the cost of the first contract. Despite this increase in the number of professional staff to eleven, the original staffroom was still larger than the minimum allowance for the newly enlarged school. It was not until the last contract, let in 1962, that added two more rooms and hence two more teachers, that the staffroom was under the minimum code; the extra provision was easily made as Bigg had foreseen the eventuality and had used a temporary veneer of asbestos panels on the western wall of the staffroom when he designed the original block. At Aorangi, the first contract for six classrooms was let in 1958; the 1956 minimum standards for a school of this size allowed a head teacher's office and book storage facilities of 100 square feet each, and a staffroom of 150 square feet but Bigg delivered spaces of 130, 110 and 160 respectively (all dimensions in square feet).[55]

Thus the Board architect and his staff had shown that with careful planning, the White Lines policy could enable schools to enjoy facilities in excess of the minimum code although this achievement came at a cost. The opportunity to build 'exploded' configurations to emphasise the nature of schools as communities was foregone: Briggston school with its two separate east-west aligned blocks, one of eight classrooms and one of four, provided no real advance on the impersonality of the centrally planned DBP. Aorangi was similar although smaller; the two blocks were six and four rooms respectively. Kendal School, however, was an even more attenuated form of this configuration; it consisted of two parallel lines, each of seven rooms, with the ancillary facilities attached to the ends of these wings.[56] **(Fig. 57)** The echoing and narrow corridors had gone and the extra space in the classroom put to good use, but the buildings, although possibly cheaper to construct than clusters of rooms, lacked the facility for classes to spill out onto the veranda and beyond as had been possible in the Canterbury plan developed in the 1930s. The message transmitted to pupils, teachers and the community was that education was something that took place in boxed environments that although not quite hermetically sealed, nevertheless provided little incentive to connect with the outside world or even with other classes. This arrangement was perhaps more defensible for infant groups, in fact the Otago Board architect, Clifford Muir, argued that a basic principle for his design of such rooms was that

> the classroom should be a "home" for the children and should express the idea and feelings of a family room. Then the teacher would take his or her rightful place as the head of the family, the whole pattern thus giving

[55] The plans for Aorangi, originally named Brookside Terrace, can be found in ANZC, CAMQ, 3253, CH564, box 381, RS/348.
[56] This school was originally known as Kendall Street [sic]. The drawings can be found in ANZC, CAMQ, 2261, CH690, box 16, Rec. No. 7/8, Part 1.

> a feeling of unity and security to the family. The classroom should be a complete and self-contained unit not sharing anything with any other class... all activities should take place in the classroom… under the control or supervision of the teacher.[57]

To facilitate this philosophy, Muir delivered a 900 square feet classroom; the compromises he would have had to have made elsewhere to achieve such spatial largesse were not mentioned in his article.

By the end of the 1950s and the beginning of the 1960s, the architectural team at the CEB faced the problem of integrating additional rooms built to the 1956 code with existing smaller wings built to the Dominion Basic Plan. This happened at schools like Paparoa Street, planned in 1952 to cater for relatively small rolls which did not justify two full wings of classrooms, the original infant block being only two rooms. As the demand for accommodation at this school increased, the CEB used temporary rooms as a stopgap, but in 1959, the Department approved of their replacement with four new permanent rooms. The relative lack of space and configuration of the site precluded the construction of a new wing; instead the existing two room block was modified by adding two rooms onto each end of the original structure that instantly became a DBP time capsule flanked by spaces designed according to the 1956 code.[58] (**Fig.58)** The plan of the eastern end of the transformed block shows the collision between these two styles; the corridor running to the south of the older classrooms was retained and at the eastern end opened directly in to the new and larger room. The original corridor return which led north to an external door was cleverly reused as a storage area subdivided into two 12 x 6 feet spaces, one accessed from the new room and the other from the end of the existing corridor. These additions and alterations were repeated at the other end of the block. The new areas of the wing were clad in matching brick and Bigg achieved visual unity by carrying on the original roof line rather than attempting to introduce the shallow pitch of the more recent designs used under the 1956 code.

By the mid-1950s there were ten education boards in New Zealand, all with the freedom to develop the designs which best suited their local philosophies and conditions. The NZEI kept an eye on local developments and occasionally reviewed them in the Institute's monthly journal, *National Education.* In December 1960, it analysed a Hawke's Bay prototype developed in 1957

[57] Clifford Muir, The Family Classroom - an experiment in Otago, *Education*, April 1960, pp.80-81.
In his article,Muir implied that this philosophy had received approval from the local Teacher Advisory Committee chaired by the local chief inspector.
[58] Drawings for this modification are at ANZC, CAMQ, CH564, 3253, box 245, RS/ 231-3.

that was based on a two-classroom building oriented towards the north, split longitudinally into two spaces along the ridge line of the roof. The only external access to the rooms was via a door through the cloakroom lobby to the south although there was also a connecting door to the neighbouring classroom. The main access to light and air was provided through the extensively fenestrated northern aspect with a combination of sashes and fixed panes that was repeated to a more restricted degree on the south-facing wall thus generating a natural ventilation cross flow. The potential problem of glare was mitigated by eaves of four feet overhanging the northern wall. Exterior surfaces were covered by a combination of weatherboard and cement board panels, a choice possibly dictated by memories of the tragedy of 1931 when the use of load bearing brick had had fatal consequences. By 1959, the need to restrain expenditure had become obvious in small details, for example the steel lattice rafters, originally boxed, were left exposed. Arguably this design paid some attention to the spirit of the exploded school, as a series of connected communities of two room units was separated from the next small group of rooms by recessed cloakrooms and toilet blocks.[59]

In the same edition of *National Education*, an Auckland development was considered; a noticeable innovation was a system of skylights on the southern slope of the roof, admitting light through grilles set in the ceiling.[60] By 1962, Hawke's Bay had developed the Richmond Type School which was described as the provision of three blocks, each of four rooms on either side of a central administration block, with a 4 room block for infants behind.'[61] This was a configuration that would not have seemed out of place in a Canterbury schoolyard where Bigg continued to design new schools unblushingly referred to as 'exploded' or 'clustered' despite his reluctance to depart from the DBP regulation straight lines. The Canterbury architect was not, however, averse to replicating designs from other districts when additional accommodation was required in existing schools. In 1965, a two classroom design for primary rooms at Temuka District High School provided spaces of 32 x 24 feet separated by a cloakroom and toilet block; the plan was clearly marked 'South Auckland Education Board' and gave the names of the architectural team responsible,[62] and the date, 1958, although, handwritten above this information was the notation 'Documents prepared by the Canterbury Education Board.' Yet despite the built exemplars from the DBP and White Line eras, for many teachers, pupils and

[59] *National Education,* December, 1960, pp.492-493.
[60] Ibid., pp. 494-495.
[61] W.E Langford, Two New Hawke's Bay Schools, *National Education,* May 1963, pp. 164-165.
[62] N.Earles, S.V Mrkusic and A Witten-Hannah. ANZC, CAMQ, CH564, 3252, box 302, Folder 2, A/360/42.

school committee members, the 1950s and 1960s were characterised by another structure, the physical evidence of which has now largely disappeared, the building known as the 'prefab'.

In discussing this phenomenon, some clarification should be attempted immediately. The term itself was an abbreviation for a prefabricated building, a concept which implied some form of standardisation leading to the ability to manufacture components off site and to assemble them where the building was needed. The idea was certainly not new. In its annual report for 1896, the Wanganui Education Board claimed that schools required for small rural communities could be designed so that they 'could readily be taken to pieces' and then 'conveyed in sections to the proposed school site' where assembly would be straightforward.[63] By 1923, the Minister of Education noted that such rooms could also be used as temporary supplements to the building stock at urban schools with fluctuating rolls and could even be used as 'workshops, laboratories [and] domestic-science rooms.'[64] These structures came to be known as 'iron' schools as the standard construction method was to use a wooden framework, with a corrugated iron roof and cladding. The CEB used these buildings in both rural and urban contexts; a good example of the former is the room erected at Parnassus in 1918 as a temporary measure, but considered adequate to serve the needs of the local community until the structure was replaced in 1923.[65] **(Fig.59)** In Christchurch, the rapidly growing Waimairi School appears to have received several rooms of this variety over the period 1916 to the mid-1920s pending the completion of the programme of permanent accommodation. A photograph, dated 1922, shows an extensively fenestrated double unit that is marked out as portable only because of its corrugated iron veneer in a school that was still receiving brick additions until 1926. (**Fig.60)** In 1925, the Department of Education thought highly enough of the CEB's use of temporary rooms to include photographs of the 'portable school' at South Brighton in its annual report in *AJHR*. The exterior view shows a structure similar to that at Waimairi divided into two rooms, one larger than the other, but clearly capable of extension if required. The interior is basic in nature but shows the same fenestration pattern that was used in permanent Board schools of the era although there is no ceiling and no form of artificial light.[66] (**Fig.61)**

In 1932, a double room for Richmond school was designed by the *de facto* head of the Building Department, John Bigg.[67] Although clearly planned to be moveable there was obviously a

[63] *AJHR,*1896, E-1, p.13
[64] *AJHR,* 1923, E-1, p.7
[65] ANZC, CH210, p.355.
[66] *AJHR,* 1925, E-1, between pages 16 & 17
[67] ANZC, CAMQ, 3008, CH662, box 6.

concern to provide a quality building as was evidenced from the specifications.[68] The structure featured a 26 gauge corrugated iron roof over building paper and the rooms were fully lined with a product identified as 'Masonite Prestwood' from floor level to a dado, four feet in height, and above this with Sisalkraft, a material also used for the ceiling. The exterior cladding was completed in weatherboarding fixed vertically with cover battens. The fenestration referenced the veranda variant of the open-air bungalow in its use of north-facing glazed bi-folding doors although in this case no actual veranda was provided as this would have implied a permanence that was not intended. There was no provision for artificial lighting, and heating was achieved by a stove in the corner of each room. **(Fig.62)** In short, the temporary school rooms of the interwar years, at least in urban areas, were generally basic but certainly adequate in the context of the period and would have contributed to a superior learning environment in comparison to many of the nineteenth-century buildings that were still in use in the Canterbury District.

The chronic accommodation shortage in schools in the Canterbury district from the 1940s, and the failure of the Board to meet this demand with standard classrooms, inevitably led to the CEB decision to increase the use of temporary buildings. Plans and specifications for a model developed in 1943 by the Public Works Department were found in the CEB files but the generous size of this structure, 840 square feet which included a cloakroom and store of 140 square feet, probably precluded extensive use of this model.[69] The size of the post war prefab most used in Canterbury until the development of the new 'relocatable' in the late-1960s, was significantly smaller and hence cheaper to build and to shift. A major problem in analysing the standard prefab is the lack of contemporary documentation regarding the design of this structure.[70] Perhaps this simply reflects the *ad hoc* nature of the Board's response to what was an urgent need to provide classroom accommodation. Fred McCook, the Board's Assistant Architect in the 1950s,[71] claimed that the plan was developed at the CEB workshops in Moorhouse Avenue and deprecated the result as 'just a shed'.[72]

[68] Specifications, ibid., pp.1-6.
[69] ANZC, CAMQ, CH564, 3252, box 233, Folder 6.
[70] The relevant records are Schools-Portable Classroom 1924-69, ANZW, AAQB, W4073, box 306 and Prefabricated Classrooms 1953-67, ANZC, CAMJ, CH127, box 15. Neither file has direct evidence of plans or specifications.
[71] A.F McCook was appointed to this position in 1952. In November 1960, he resigned to take up the position of Architect for the Department's Southern Regional Office. In 1969 he returned to the CEB as Chief Architect. CEB *Annual Report*, 1952, p.1 and CEB Board Minutes, 14 December, 1960.
[72] Interview, Fred McCook.

By the use of later evidence,[73] it is possible to infer that the dimensions of the structure were 31 feet 6 inches x 20 feet, however while the code requirement for permanent rooms was 624 square feet, only 512 square feet of the prefab was classroom space, the remaining area being taken up with a porch cum cloakroom. The building featured a pitched roof with gabled ends and was typically clad with weatherboard (**Fig. 63),** although in the 1940s and early 1950s, the use of this material was still subject to the permission of a Timber Controller, thus in some cases, a quicker and cheaper option was to use Poilite, an asbestos based product. The walls of the room were lined but the there was no ceiling, the timber rafters being left exposed. Ideally, the roof was corrugated iron but in some cases malthoid was used as it was more freely available and cheaper. Fenestration was adequate with three sets of double casements in each side wall and one or two similar units set in the external wall of the cloakroom, but the Department's initial refusal to fund the reticulation of electricity to temporary structures ensured that no artificial light was possible and conditions were gloomy on overcast days. Heating was in the form of a solid fuel stove which was sited in a corner of the room, further cutting down the space available for pupils in an era where class sizes could be in excess of 40.

As early as 1950, the issues associated with the proliferation of temporary rooms had been discussed at a conference of boards' architects; the main problem being seen as the rapid deterioration of these buildings unless regularly maintained, a procedure which was often not carried out, as it was hoped, rather vainly in many cases, that the need for these structures would be short-term.[74] An example of the way in which temporary rooms were used can be evidenced from the Christchurch school of Wharenui. In 1951, a sketch plan of the disposition and size of buildings at this school showed five of these rooms clustered together in the southeast corner of

[73] In July 1966, J. Lelliott, the CEB's Building Administration Officer, produced a report for the Board making recommendations as to the future policy which should be adopted with regard to temporary rooms. Part of his analysis was based on a review of the problems of the 'old prefab' in which he provided a general description of these structures for comparative purposes. ANZC, CAMJ, CH217, box 15, 18 June, 1966, p. 229. Visual evidence has also been used; in 1969 the CEB moved two prefabs onto the newly acquired section on the corner of Peterborough and Montreal streets. Photographs in the Board files appear to date from early 1970s when they were still in a well maintained condition, but the buildings were eventually abandoned, full of unwanted furniture, sometime after the College shifted to the new site in Dovedale Avenue, in the 1970s. Since then they have survived natural deterioration, vandalism and earthquakes and were still in fair condition in 2012 although somewhat overgrown. The dimensions were 33 x 21 feet , measured to the outside corners, and appear to be of a comparable size to the CEB's standard structure noted above which may have had its measurement performed to give an accurate indication of the inside space. Original photos are at ANZC, CALN, 182, 3082, box 1. The 2012 photographic evidence and measurements were collected by this writer. Evidence as to the date the prefabs were shifted onto this site: CEB Minutes, Building Committee Minutes, Confidential Section, 20 February, 1969, p.63.

[74] CEB Minutes, Building Committee Minutes, Report on the Architects' Conference held in December 1950, 19 March, 1951, p. 3 of a seven page report inserted between pages 124 & 125.

the site.[75] CEB records regarding the installation and removal of these structures are fragmentary and the origins of only three of them are traceable. In 1942, one unit arrived from Amberley[76] and in 1943, another was shifted from Taratuhi when this North Canterbury school was closed.[77] In 1945, a larger unit, of 800 square feet, was erected and was described as having 'polite [sic] walls, malthoid roofing and sectional flooring,' the implication being that this was a new room assembled on site.[78] It is likely that the others were delivered between 1946 and 1951, a period when there is a gap in the Wharenui file.

The need to supply prefabs quickly had strained the capacity of the Building Department, the Board's workshop could not cope and it became necessary to order extra units from local contractors. These structures could be fully assembled and trucked to the school; alternatively, new units were assembled on site. At Kirkwood Avenue, originally a temporary side school for Wharenui, a photograph shows the on-site construction of a room in 1948 although the amount of prefabrication is not clear. The weatherboard cladding is being cut to length on site but it is possible that framing was pre-cut at the Board's or contractor's workshops. (**Fig 64)**

In 1951, the Department attempted to control the price of temporary rooms by bulk funding these units at £800 each,[79] but by 1953, the cost had ballooned to the extent that the CEB was routinely requesting supplementary payments on the grounds of increased labour and materials costs. The Department grudgingly paid the difference, but finally Assistant Director Ellis wrote a stern letter to the Board in which he noted that 'The Burwood classroom cost £1003 and I am not willing to [again] accept such a high price' and that in future the cost of each unit must be less than £900.[80] Three years later, ten prefabs had developed leaky roofs, a problem traceable to the use of malthoid as a substitute for the more expensive corrugated iron. The Board's request for a grant of £900 to fix the problem received a tart reply which indicated that in such cases, the CEB should use its own funds to patch up its own mistakes.[81] As it became obvious that the

[75] Wharenui School, Return to the Canterbury Education Board, Form E-8/18, ANZC, CAMQ, CH690, 2261, box 34, 7/8, Part 3, February 1951. It was a Board requirement that each school had to produce a return at the start of each school year, showing a list of teachers employed, classes they taught and a sketch plan showing the disposition and dimensions of all buildings on site.
[76] ANZC, CH210, p.499.
[77] *CEB Annual Report*, 1943, p.5.
[78] This description was included in a letter from the Department to the Board giving permission for the disposal of this building as it was no longer required and lacked any further value. Department to CEB, ANZC, CAMQ, CH690, 2261, box 34, 7/8, Part 3, 30 January, 1964.
[79] Departmental memo to CEB, ANZC, CAMJ, CH217, box 15, 2 November, 1951.
[80] Ibid., Ellis to CEB, 22 July, 1953.
[81] Ibid., Ellis to CEB, 26 October, 1956.

increasingly shabby 'sheds' would remain all too visible in the nation's schoolyards for much longer than was originally thought, the Department agreed to make these buildings more functional and comfortable; in 1958 permission was granted for boards to apply for the provision of one electric light and one heat point per room,[82] and as the malfunctioning malthoid was replaced, translucent corrugated 'Novalite' panels were inserted to effectively create fixed skylights.

Prefabs, however, continued to attract opprobrium. The rooms were cramped, and the heating system could not maintain an even temperature in a space affected by draughts originating from uncovered floor boards, timber window joinery and the lack of ceilings; the use of Romesse stoves also created problems as to who should be responsible for them during the day when janitorial staff had time off to compensate for the split shifts they traditionally worked. The provision of prefabs to cater for sudden surges in rolls did not generate extra toilet accommodation; pupils could face a long and uncovered trek to the nearest lavatory facilities in an uncanny return to the trials of those of their parents who had attended open-air schools a generation before. Staff who taught in temporary accommodation could feel like second class citizens and George Dryden recalled the subtle distinction between staff members 'who came in to morning tea' and those who worked in the prefabs typically isolated from the main blocks, who had to 'come across.'[83]

Yet, for all their aesthetic and functional shortcomings, prefabs played a vital part in catering for the accommodation needs of the baby boomers. Central government funding constraints, often compounded at board level by administrative inefficiencies and genuine shortages of materials and labour, ensured a steady demand for temporary rooms that could be supplied relatively quickly. It is true that the Wharenui example shows that this school's 'prefab alley' remained on site for nearly 20 years, but this was something of a special case as the CEB was reluctant to provide more permanent accommodation, as from the early 1950s, the school was earmarked as a potential contributor to a future intermediate planned to serve the Riccarton area. Indeed by 1964, with the construction of Kirkwood Intermediate, only two prefabs remained at Wharenui, and the 1965 return showed only one still on site and that was utilised as a storeroom.[84] The example of Paparoa Street presents a different experience; prefabs were added to the school's

[82] Departmental circular to Boards, CEB Minutes, Building Committee Minutes, 20 August, 1958, p.612.
[83] Interview, George Dryden. He also recalled a painter telling him that maintaining the exterior surface of prefabs 'was a waste of good paint.'
[84] Wharenui School, February Returns to the CEB, Form E-8/18 ANZC, CAMQ, CH690, 2261, box 34, 7/8 Part 3.

classroom stock in 1953, 1954 (2), 1955, and 1957. However the construction of five new permanent rooms in 1959-60 allowed the removal of all temporary rooms by the end of the latter year.[85]

There is some evidence, however that the boards were keen to accelerate the removal of temporary buildings from the nation's schoolyards. In 1965, the Education Boards' Association lobbied the Minister to provide annual grants to gradually replace prefabs still in use. The Association, in a memo to all boards, explained that the Minister, Arthur Kinsella, had enunciated government policy by stating that temporary classrooms would be replaced only when it could be shown that future roll projections could guarantee that new permanent rooms would not be left empty in the future. However, if any particular temporary room had 'deteriorated to the point where it is no longer economic to maintain it, consideration would be given to its replacement'.[86] The careful wording of this undertaking was far from being a blank cheque to boards to apply for grants for new permanent rooms to replace prefabs suddenly classified as irreparable, but the Department moved to carry out a nationwide stocktake to acquaint itself with the scale of the potential problem. All boards were, therefore, required to fill out a questionnaire.[87] The working copy of the CEB's responses makes interesting reading. As of April,1966, the CEB held 257 units,[88] all of them bar two, in use; it was anticipated that for the 1966-67 year, 15 of the existing rooms would be shifted to new sites and that another 25 would have to be built to satisfy the expected demand. It was claimed that the condition of the existing stock was good in that none required writing off within the next five years. It was stated that when shifted, all prefabs were moved as 'whole units', none requiring to be wholly or partially disassembled. In response to a question which asked for a description 'of the main types of prefabs you have in use', the answer was that 'All are of wooden construction with an iron roof.' Apart from the first figure, the answers are suspiciously perfunctory, generalised and possibly ambiguous. Does the term 'wooden construction' imply that every prefab in use was clad in weatherboard? Had every malthoid roof been removed in favour of iron? Had all the 257 units in the Canterbury District really been assessed for their condition? Perhaps the superficiality of the answers to this questionnaire show as much about the attitude of the

[85] ANZC, CH210, p.352
[86] Memo from the EBA to the CEB, CEB Minutes, Building Committee Minutes,19 May, 1965 (Confidential Section), p.219.
[87] ANZC, CAMJ, CH217, box 15, record no. 12686/53.
[88] Spencer, the Secretary Manager, estimated that one in every eight of the Board's classrooms was a prefab. Spencer to Regional Superintendent, 1 August, 1966. Ibid.

Building Department as it does about the CEB's stock of prefabs, an observation that leads to an attempt to analyse the nature of the leadership of the Board's architectural team.

John Alexander Bigg was born in England in 1903, and in 1920, as a seventeen year old, joined the CEB office as a trainee draughtsman at an annual salary of £48.[89] Perhaps it was his English heritage that led him to pursue an English qualification as an Associate of the Incorporated Association of Architects [90] rather than seeking registration through the local New Zealand Institute of Architects which was the normal process for Board Building Department employees.[91] As has been noted in Chapters Four and Five, his work was initially well regarded and his development of the veranda block has been seen to be a design landmark to the extent that it was replicated by several other boards. However, after the war, there is some evidence in the Board minutes of an increasing exasperation with Bigg's lack of productivity. For example, in June 1955, Board member R.R Beauchamp had circulated a paper alleging the former's 'slowness, mismanagement, promises forgotten, and targets not achieved.' At a special Board meeting, Bigg defended himself by blaming, *inter alia,* strikes in England and Australia, shortages of cement, and the slowness of contractors [92] By 1960, the CEB architect had been an employee of the Board for forty years and had become used to facing down accusations of inefficiency, but in September 1961, the Board's Secretary-Manager, Percy Spencer, alerted the Building Committee to a sequence of events surrounding the construction of the Mairehau Assembly Hall that led him to conclude that Bigg's behaviour had been so irregular that 'there is only one remedy.'[93]

Primary school assembly halls were not fully funded by the Department and were reliant on local fundraising but attracted a government subsidy of up to £4000. The local funds had duly been raised; on 22 August, the Board had supported the Mairehau School Committee's application for the subsidy, and on 5 September, the Minister of Education notified the Board by telegram that the funds would be forthcoming. As part of a carefully choreographed and standard procedure, the local MP, Bert Walker, released the news in a press statement on 5

[89] Salary card for J.A Bigg, ANZC, CASY, CH278, box 1.
[90] I am indebted to Jessica Halliday for supplying information about the Incorporated Association of Architects.
[91] It should be noted however that CEB architectural personnel wanting to strengthen their local qualifications, tended to seek membership of the Royal Institute of British Architects. Only one other CEB architect appears to have sought membership of the IAA, Bigg's protégé, Frederick Greenwood, who was appointed Assistant Architect in 1949. CEB Minutes, Building Committee Minutes, 22 April, 1949, p.242.
[92] CEB Minutes, 14 June, 1955, p.404.
[93] Spencer's charges against Bigg were included in a special report, CEB Minutes, Building Committee Minutes, pp.847A-847D, 20 September, 1961

September, and formal Departmental permission to call tenders was despatched on 6 September. At this stage Spencer was surprised to be informed that the project had already started and on visiting the site found construction well advanced having commenced as early as 18 August. Furthermore he discovered that tenders had not been publically called, that Bigg had personally approached a small group of builders for prices and that the opening of the tender documents had not followed standard office procedure. Taken together these events suggested something far more serious than the reputation for laxity that Bigg had attracted for more than a decade, and the whiff of corruption may have been the trigger which led Spencer to conclude that this episode was 'the most irresponsible action in the Board's history.' A day later, Bigg was summoned to attend a meeting of the Staffing Committee and offered his explanation that revolved around his desire to help the Mairehau committee speed up the process by anticipating the Department's favourable decision and using builders who had no current work on hand. He then had the good sense to apologise for his action and 'gave the assurance that proceeding without authority would not happen again.'[94]

However Spencer persisted, and in a longer document he drew up a series of charges including more examples of Bigg's beginning unauthorised contracts as well as allegations that he refused to delegate work, that he was as much as two years behind in his paperwork, that he did not keep regular office hours and moreover that his desk was always untidy.[95] Spencer warned the Committee that 'Mr Bigg is gifted in oratory' and that members should not be taken in by his plausibility. He included a list of fourteen specific improvements that the Architect would have to accept in the future [96] and concluded that

> It could well be that Mr Bigg will resent strongly the recommendations made above and my only comment to that is that he has already sufficient service to qualify for full superannuation.[97]

Board members must have been somewhat concerned about the hysteria of their Chief Executive's approach that was clearly aimed at forcing Bigg to resign, but ultimately the whole

[94] CEB Minutes, Staffing Committee Minutes, p.847G, 21 September, 1961.
[95] This was a more detailed statement drawn up by Spencer, CEB Minutes, Staffing Committee Minutes, a six page document inserted between pages 958 and 959, 18 October, 1961.
[96] Ibid., p.958B. Number 14 on this list recommended that 'Mr Bigg to be told to spend more time at the Main Office and to bring all his work up to date.' It is possible that this is a reference to a point made by at least two of his former colleagues who noted Bigg's predilection for leisurely working lunches in the bar of the Christchurch Working Men's Club, located in the same building as the Board's offices. In 1960, the Building Department was shifted to an office at 324 Worcester Street, specifically designed to cater for the growing number of its employees.
[97] Ibid., Spencer's statement of 18 October, p.6

episode was as much a failure of Spencer's and the Board's management systems. Spencer had virtually admitted his own shortcomings when, in the above document, he revealed that he had known about some of Bigg's alleged transgressions for several years and had failed to do anything about them.[98] Bigg's timely apology and promise of future good behaviour was accepted but it is probably fair to say that it was the Board that effectively backed down in the interests of minimising the bad publicity that would have provided even more ammunition for those intent on demonstrating that only central government agencies could be trusted to administer public money. The opening of the Department of Education's Southern Regional Office in Cranmer Square only a year before may have contributed to the air of unease at the CEB, a feeling possibly exacerbated when Fred McCook, Bigg's Deputy, resigned to take up the position of the Department's Southern Regional Architect.[99]

At this stage only two individuals had headed the CEB's Building Department; George Penlington had served the Board since its consolidation in 1916 and, in the decade before that, had performed a similar role for the North Canterbury Education Board. The CEB's unhappiness with his performance has been documented in Chapters Two and Three, and by 1928, the 25 year old John Bigg had assumed responsibility for the office paper work as well as carrying out his draughting duties; he made such a positive impression that he was duly appointed to head the Building Department as Penlington's successor in 1931. Thus Bigg's only work experience was with the CEB and although such career longevity could be seen as a strength, conferring the advantages of immense experience and institutional knowledge, from the evidence available, it would appear that by the end of the Second World War, he was trapped in a position which required attributes that he did not possess.

Bigg lacked the organisational ability to weld a growing team together,[100] and, if Spencer was correct in his assertions, the Board Architect had retreated into cynicism and indolence. In retrospect, it is hard to escape the conclusion that Bigg had been content to bask in the fading glory of the much admired veranda block that he had developed, albeit from a prototype of Penlington's design, and that he was never comfortable in the new climate of the 1950s with its Departmentally-driven emphasis on speedy planning and execution, along with an enhanced

[98] Spencer had been Secretary-Manager of the CEB since 1956.
[99] The Southern Region, headed by a Regional Superintendent, was the Departmental outpost responsible for all primary and secondary state education in the South island. See the Board minute, CEB Minutes, 22 April, 1960, p.244. McCook's resignation from the CEB took effect from 8 November, 1960 and he commenced his second term of employment with the CEB at the beginning of 1969. ANZW, AAD, W3640, box 50.
[100] By 1953, Bigg was responsible for a staff of fifteen. CEB Annual Report, 1953, p.1

financial accountability. A more professional employer may have dealt with the problem more effectively, but even when confronted with the 'smoking gun' of the Mairehau School hall incident, Spencer could not convince the members to take the action that he felt was necessary. In a large government department the problem may have been dealt with by moving an underperforming senior officer sideways, but the CEB was too small an organisation for that to be possible and Bigg clung to his job until Board regulations that required retirement at age 65, finally achieved in 1968 what the Chief Executive could not do seven years earlier. The architect had served the last seven years of his employment without any overt problem and was, in fact, awarded 131 days of retirement leave, the maximum allowable under the then current Board regulation.[101] On attending his last meeting of the Building Committee, the chairman said that he could not let the meeting close without referring to Mr Bigg's impending retirement and 49 years' service.

> He referred to Mr Bigg's valuable assistance to the Building Committee and congratulated him on his work. Mr Manning then made a small presentation to Mr Bigg from the Committee and wished him well.[102]

However, no such recognition was made at Board level, surely a significant omission for an employee who had almost certainly created a record for longevity of service to the CEB.

In retrospect, the period 1950 to the mid-1960s, appears to be relatively insignificant in terms of architectural innovation as practised by the Canterbury Education Board although the 1950s was a decade of change and initiative in a wider context both nationally and regionally. In Auckland, a small number of undergraduates from the local architectural school formed the 'Group' dedicated to pursuing the idea of functional, efficient and cost-effective domestic design and they embarked on the construction of a series of houses in which, with some success, they attempted to apply the concepts of international Modernism to their local environment.[103] More specifically, in Christchurch, in 1956-57, Miles Warren flew the flag of revolution in his Dorset Street flats in which his use of load bearing white-painted concrete blocks and open-plan living was the first of several domestic buildings that brought an air of *avant garde* Northern European design to his home city.[104] In 1957, his firm, Warren and Mahoney, designed the Christchurch Dental Nursing school, a series of buildings linked by covered walkways, the main structure fashioned from concrete blocks featuring a butterfly roof which cleverly maximised the natural

[101] CEB Minutes, Staffing Committee Minutes, 18 July, 1968 (Confidential Section), p.356
[102] CEB Minutes, Building Committee Minutes, 18 September, 1968, p.387.
[103] The work of these young Auckland architects is covered in some depth in Julia Gatley (ed), *Group Architects, Towards a New Zealand Architecture,* Auckland University Press, Auckland, 2010.
[104] New Zealand Historic Places Trust Register, Registered Number 7804, www.historic.org.nz/TheRegister/

light from both the north and south to enable full use to be made of the elongated dental surgery where future guardians of the nation's children's dental health practised their art on a captive pool of juvenile patients.[105] Paul Pascoe, who had worked for Lubetkin's Tecton in England before the war, was also active in providing well designed domestic buildings as well as commercial structures such as the highly visible Christchurch International Airport Terminal in 1956, for which his firm was awarded a gold medal from the NZIA in 1960.[106] Apart from the sporadic use of unpainted concrete blocks, nothing in the CEB's *oeuvre* over the period under review shows any sign that the lessons from these exemplars had been assimilated and applied.

It is surely unfair to criticise the Board's Building Department too harshly for its work in the early 1950s when, under the DBP regime, it was subject to the largest degree of *dirigisme* yet experienced in the history of New Zealand primary education. However, later in the same decade, the 1956 code and the White Lines policy did provide Board architects with the theoretical capacity to experiment, although the restrictive cost place system of funding new buildings virtually determined that any deviation from the Departmental model would be marginal at best. Thus, if a charge of obscurantism is to be levelled, perhaps it should be against the architectural team at the Department of Education, that in turn, danced to the tune called by successive Ministers of Finance, a factor acknowledged by Peter Beaven in 1967, when he observed that 'the general standard of design… is lamentably low' and that one of the reasons for this was the 'indifference by government departments in refusing to sanction the small extra cost of high design standards.'[107] Yet Clifford Muir, the Otago Board architect displayed an ability to think conceptually and to apply modern principles in an educational context while working under the same constraints faced by Bigg in the post-DBP era, however, the CEB architect would not, or could not, provide such imaginative leadership.

The New Zealand education system itself was far from insular. The Director of the Department of Education from l940 to 1959, Clarence Beeby, was an internationalist by training, experience and outlook and has been called 'New Zealand's most distinguished educational thinker;'[108] he presided over a continuing programme of international teacher exchange and it is likely that it

[105] The plans for this complex are held at ANZC, CALW, CH166, box 114.
[106] Ana Robertson, Pascoe, Arnold Paul, Biography from the Dictionary of New Zealand Biography, www.TeAra.govt.nz/en/biographies/5p14/1
[107] Peter Beaven, South Island Architecture, in Douglas Lloyd Jenkins (ed), *New Dreamland: Writing New Zealand Architecture*, Random House, New Zealand, Auckland, 2005, p.175.
[108] William Renwick, Beeby, Clarence Edward, Biography, from the Dictionary of New Zealand Biography. http://www.TeAra.govt.nz/en/biographies/5b17/1

was his initiative that was the driving force behind the dispatch of the research team to Britain. However, it is probably true to say that the Department's willingness to look overseas had a heavily Anglocentric bias that was perhaps unwittingly revealed when one of the trio of researchers, G.V Wild, noted, that en route for 'the pilgrimage to England', he had a week in Canada, that one of his colleagues, C.G Ellis spent four months in the USA and that the other, the Department's Chief Architect, R.A Widdicombe had a week in Australia. However the 'essential… experience was that busy and satisfying period of three weeks under the guidance of the English Ministry of Education'.[109] In its failure to make any comment about ideas and models from the other countries visited, Wild's article implied that there were no lessons worth learning that were not generated in the United Kingdom. The NZEI certainly kept local teachers up to date with the latest English designs in its journal, *National Education*; for example, in 1960, the British entry for the Milan Triannale Exhibition, was the erection of a primary school, admired for its 'spaciousness, gaiety and colour everywhere.'[110] In 1963, an unnamed grammar school was depicted sitting on slender steel columns rather than concrete foundations and featuring a flat roof,[111] obviously suggesting that the Smithsons' modernist prototype at Hunstanton, completed in 1954, was still something of a model for English local authority architects.[112] However the propensity of New Zealand educationists to look admiringly at Britain was, during this period, limited to learning to apply its principles of economy rather than those of imaginative modern design.

The baby boomer years had challenged the CEB with the greatest crisis in its history. For various reasons, the breathing space from 1946 to 1950 was not used as efficiently as it might have been to cope with the actual and potential problems of five-year olds laying siege to existing schools and requiring new facilities in areas where new housing was being mass produced. The Department's reaction, the Dominion Basic Plan, along with the its associated code of 1951, was an attempt to speed up the planning processes at board level but was ultimately rejected because it did nothing to reduce or even contain the cost of new school buildings. The White Lines protocol and the 1956 code created a more effective and transparent system of controlling expenditure while presenting Bigg and his team with the opportunity to develop a local solution to the problem of supplying new schools and additional permanent

[109] G.V Wild, New School Designs, *Education,* p.27.
[110] *National Education,* November, 1960, p.449.
[111] Ibid., May 1963, p.166.
[112] This style was dubbed the 'New Brutalism' by Reyner Banham. William J.R Curtis, *Modern Architecture since 1900,* Phaidon Press Limited, London, 1996, pp.530-531.

accommodation to meet the needs of the Canterbury district's primary education system in the 1960s and beyond. However, no distinctive local style evolved; the open-air bungalow of the 1920s and the veranda block of the 1930s, 1940s and early 1950s had no obvious successor and it is perhaps ironic that the most successful Board initiative of the late 1960s and 1970s would evolve from its reliance on the temporary prefabricated accommodation much used in the 1950s and early 1960s.

Chapter Seven. The CEBUS solution.

In the mid-1960s, New Zealand was still an economy highly dependent on the export of a few commodities that were subject to volatile price fluctuations. When the price of wool fell sharply in the middle and late 1960s[1], the effect on the terms of trade was severe enough to convince the government that public expenditure should be restricted. Real GDP fell by 2.5% in the year from December, 1966, and unemployment increased from 6000 to 14000.[2] The government's decision to restrain spending had an immediate consequence for the building programme of the CEB, as in March 1967, the boards were informed that all works not deemed to be 'immediately essential' were to be deferred.[3] A month later, the Building Committee discussed further cost-saving suggestions from the Department: possibilities included the limiting of subsidies for assembly halls, considering smaller classrooms and the deferring of upgrades to improve the facilities of schools whose rolls had increased.[4] One beneficial side effect of the downturn was that as in the 1930s, builders scrambled for work and pricing for jobs became very keen. For example, a contract for six additional classrooms at Merrin School attracted 12 tenders and JJ Construction's winning price of $36,383 was much lower than the Board estimate of $44,934. The remodelling of six classrooms at Linwood Avenue, forecast to cost $12,112, attracted 12 tenders, the lowest of which was $10,945.[5]

Later in 1968, the government apparently underwent a conversion to Keynesian economics, a change of mind that may have been prompted by the general election due in the following year; the consequential about-turn in fiscal policy was exhibited in a rather panicky attempt to reflate the economy through stimulating the building industry in the rural areas. In June and July, two special grants were made to the CEB totalling $87,450; the funds being spent on eleven small contracts ranging from the replacement of toilets at Ikawai to improving storage facilities at Montalto.[6]

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[1] The wool price index in 1964 was 1223. In successive years it then fell to 956, 945, 770 and 730 until a recovery to 789 in 1969. *NZOYB,* 1970, p.699

[2] *Labour Market Downturns since the 1960s,* Department of Labour. www.dol.govt.nz The number of the unemployed, 14,000, was only 1.3% of the work force, yet in the context of the post-war economy, this was seen to be a worryingly high statistic.

[3] CEB Minutes, Building Committee Minutes (Confidential Section), 15 March, 1967, p.76

[4] Ibid., 14 April, 1967, p.132.

[5] Ibid., 21 February, 1968, pp. 52-53.

[6] CEB Minutes, Building Committee Minutes, 21 August, 1968, p.355.

Macro-economic issues were not the only factors affecting Board planning and the nature of its building programmes. In 1970, a problem that had concerned the CEB for several years received a public airing when a local newspaper revealed that Glenmoor School in Philpotts Road, Christchurch, opened in early 1959 to cater for the anticipated growth in housing in the rural land to the north of the school, was facing declining rolls and that of the eight permanent rooms, only five were in use, and moreover, the roll was still declining.[7] On the face of it, the presence of four new schools to service the new housing area in Mairehau/North Shirley does seem excessive,[8] however the major cause of the Glenmoor embarrassment was a local government policy initiative; a regional plan that attempted the limitation of urban sprawl by creating an 'urban fence,' also known as a 'green belt.' This decision, made in 1959, after the school had opened, attempted to protect farming and horticultural land from housing development and thus removed the rationale for Glenmoor's existence. In effect, the CEB was punished for taking future trends into consideration rather than pursuing its standard policy of a *post hoc* reaction to the burgeoning demand for new accommodation.[9]

Even a natural change in the demography of an area could lead to under-utilisation of relatively new schools, a trend that had been brought to the Board's notice in March 1961. The CEB had hosted the new Minister of Education, Blair Tennent, at a special meeting where he spoke of his concern that ageing populations in housing areas built immediately after the war had already resulted in schools with surplus permanent classrooms; he cited the example of a school in Nae Nae with twelve rooms, six of which were then empty, and concluded with an observation,

> Have a good look at this one before you go ahead with a full school of permanent rooms. I hate prefabs as much as you do, but that is a case where we would be justified in building a certain number of classrooms and having a few prefabs there and watch what the population trend is.[10]

Another factor that had to be considered was the CEB's Departmentally-approved policy that intermediate education in specifically designed schools should be made as widely available as possible; the consequential decapitation of primary schools in Christchurch, Timaru and Ashburton would result in falling primary school rolls and potentially the redundancy of more permanent rooms.

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[7] *Star*, 1 April, 1970.
[8] These schools were Mairehau, Glenmoor, Briggston and Quinns Road (later renamed Hammersley Park).
[9] This issue is covered by Carole Miller and Marco Amati in The Green Belt that wasn't, Amati (ed), *Urban Green Belts in the Twenty-First Century*, Ashgate, Aldershot, 2008, pp. 89-91. The passing of the *Resource Management Act 1991*, eventually overrode the strictures of the regional plan.
[10] CEB Minutes, 8 March, 1961, p.230

In this context it is not surprising that the CEB thought again about the use of temporary buildings, although it was aware of the negative connotations attracted by the post-war model prefab and in 1966 experimented with a larger structure at Cobham Intermediate. In a letter to the Southern Regional Superintendent,[11] the Board Secretary-Manager, Percy Spencer, explained the advantages of this model.

> The overall size was increased to 800 square feet of which 640 square feet was teaching area. A walk-in store equipped with steel shelving was introduced and heating is by four wall mounted infra-red heaters.

Thus, the CEB had claimed to have solved the major problems of the standard prefab's lack of space, paucity of storage and inadequate heating. The extra cost of £320 per room (an effective increase of 26 per cent) was seen to be a price well worth paying, although Spencer admitted that these figures were based on the assumption that construction would be carried out by the Board's own staff rather than by outside contractors. It appears likely that Spencer's enthusiasm was at least partly prompted by a letter from the Cobham Headmaster[12] who had noted a number of advantages of the 'New Type' of prefab. He complimented the Board on providing extra classroom space, at least partially a function of the removal of the Romesse corner stove as much as the provision of a larger allocated teaching area, the existence of three electric lights as well as a translucent Novalite roof panel, and the extra window at the end of the room that not only gave more natural light but also engendered a greater sense of space. He was also particularly appreciative of the 'compressed material' floor which cut down on draughts and was easy to sweep.[13]

However the CEB did not persevere with the Cobham model, probably on the grounds of economy; the greater construction expense was at least a fixed cost but the increased size of the structure implied that transporting the larger room to new sites would be awkward and hence more expensive. In this context, the Board's Building Administration Officer recommended 'further cautious experimentation with mobile classrooms.'[14] A variation was the unit room, used from 1971, a smaller structure 30 x 25 feet, but one that, after allowing for an indented entry porch, provided a larger teaching space of approximately 700 square feet. This gain, however, was at the expense of the loss of a separate cloakroom, thus pupils' coats and wet

[11]Spencer to Southern Regional Superintendent, ANZC, CH217, box 15, Record 1286/53, 1 August, 1966.
[12] Roberts to Spencer, ibid., 15 June, 1966.
[13] No plans or specifications for this model have survived but the flooring was probably an early variety of compressed particle board, a product that was available in 8 x 4 feet sheets and was cheaper to install than tongue and groove timber lengths. Interview, Peter Greening.
[14] Lelliott to Spencer, ANZC, CAMJ, CH217, box 15, Record 1286/53,18 June, 1966.

weather gear had to be stored inside the teaching space, a solution that was far from ideal.[15] **(Fig.65)** The room did conform to the 1956 code in providing a sink and was similar to the Board's first classrooms developed under this protocol by including a moveable storage unit. Identical fenestration on both north and south elevations provided adequate natural light and ventilation; a continuous line of six independently operated sashes took up 24 linear feet of both walls and these were surmounted by a bank of three Cooper louvres controlled from a central winding mechanism. Heating was accomplished by wall-mounted infra-red units controlled from a thermostat. A major advantage of this model was the use of a Scotweb double ridge beam, a structural member that could be unbolted and split longitudinally to allow for a more straightforward disassembly of the building prior to relocation.

An interesting analysis of these units was provided by an experienced headmaster in which he noted that the advantages were the rapid construction, ease of movement and low cost, but that the rooms were noisy, and easily damaged and that the exterior sheathing that tended to feature asbestos sheeting, was also susceptible to damage while being visually 'austere and difficult to make look attractive'.[16] In short, while providing some of the refinements of the 1956 code, the units had many of the disadvantages of the post-war standard prefab. They provided a short term solution to urgent accommodation problems and were probably acceptable to schools on this basis; by 1979 there were 216 of these rooms in use in the Canterbury District.[17] Other education boards were developing their own solutions to the need for temporary rooms, for example, Nelson also developed a unit room but this variation was built on a much more generous scale than that developed in Canterbury. The Nelson Board favoured a longer structure, (36 feet), that provided a teaching space of 624 square feet and a large cloakroom with individual lockers that added another 248 square feet. The room was generously lit by nine fluorescent tubes and heated with an oil fired stove.[18] The first of Canterbury's unit rooms was erected at Branston Intermediate in 1971[19] but prior to this it had been realised that there was a need for a more permanent structure, which while still technically 'portable,' should also be acceptable to school committees as a longer term solution to accommodation problems.

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[15] An example of the drawings and specifications for unit rooms can be seen in those prepared for Fairton School. ANZC, CAMQ CH564, 3293, box 505, A/086.
[16] A.E.L Britton to Regional Superintendent, ANZC, CANB, CH232, box 73, rec.7/37/3, Part 1,2 May, 1978.
[17] At this date there were also 85 prefabs still in service. CEB to Southern Regional Office, ANZC, CAMJ, CH217, box 54, 29 June, 1979.
[18] Nelson Education Board, Unit Room, ANZC, CH232, box 73, rec.7/37/3, Part 1, June 1970.
[19] Report to Building Committee re the Unit Classroom, CEB Minutes, Building Committee Minutes, 17 October, 1973, p.324.

The new building, that was to become as enduring and ubiquitous as the famous veranda block, was developed by the Board's architectural team in the latter part of the 1960s. Fred McCook, the Chief Architect from 1969, stressed that this was a team effort, but highlighted the role of the Chief Draughtsman, Owen Rees,[20] while Peter Greening, felt that his former colleague, David Batchelor,[21] who had had experience in modular construction in the United Kingdom, played a major part in the development of what came to be called the CEBUS model.[22] In a parallel development the Building Department was working on its response to the challenge of providing temporary rooms for the school to serve the 'instant' settlement at Twizel in 1970, a town built specifically to house hydro construction workers, many of whom had families. The project was planned with the foreknowledge that the town would shrink rapidly after the completion of the energy infrastructure in the Mackenzie Basin and that most classroom accommodation would have a site life of only 12 to 15 years; however, because of the harsh climatic conditions, the area routinely experiencing weeks of sub-zero conditions in winter, the use of standard prefabs was precluded.[23] Thus the rooms were designed with quality materials; external surfaces had three layers; building paper, plywood sarking, and cement or asbestos panel cladding. The Gibraltar board internal walls were fixed over a layer of fibre glass insulation that also was used between the galvanised corrugated iron roof and the ceiling supported by uncovered light steel trusses. There was also a layer of insulation material, supported by wire netting, under the particle board floor. The basic configuration was a rectangle that housed two classrooms of 680 square feet either side of an entry lobby/cloakroom that led into pupil toilets; in the context of temporary rooms, a major breakthrough indeed but a necessary one as the intense cold in June and July made it impractical for children to be forced to walk to detached sanitary facilities. Window joinery was manufactured from steel rather than timber as the former was considered less likely to be susceptible to draughts, and heating was supplied by the clean and efficient medium of wall

[20] Interview, Fred McCook.
[21] Interview, Peter Greening. David Gray Batchelor (1930-1992), worked for the CEB between 1968 and 1972. He had been a student at the RIBA in 1949, became an Associate in 1955, and a Fellow in 1968. He also had a Dip. Arch. from Northern Polytechnic, London. After his stint with the CEB he returned to the United Kingdom. (Information from Tricia Lawton, RIBA Information Centre, 27 April, 2012).
[22] This is an acronym for Canterbury Education Board Unit System. This term which includes the word 'unit' can lead to confusion between unit classrooms and the CEBUS marks that came to be called relocatables. Eventually the CEB and Department's Southern Region arrived at a set of definitions which made it possible to carry out annual stocktakes. For example, as of March 1976, the Canterbury district had 1866 permanent rooms, 301 relocatables (i.e. CEBUS rooms), 194 Unit Rooms and 150 prefabs. Annual return, 31 March 1976, ANZC, CAMJ, CH217, box 54. It will be obvious that this terminology is far from exact as the last three types are all, 'relocatable', and previous terms used i.e.' Portable,' 'temporary', 'demountable 'and 'mobile' are equally unhelpful as a method of differentiation.
[23] The background correspondence relevant to the Twizel Primary project can be found in ANZC, CAAA, 2261, CH45, box 96/f.

mounted infra-red units.[24] **(Fig.66)** The first contract of 8 rooms was let to a Timaru firm, Firman, Ellis and de Reus, which constructed the buildings in their Timaru workshops and trucked them to Twizel where they were lowered onto to pre-prepared concrete piles.

The prototype, eventually branded as CEBUS Mark 1, had some similarity to the designs used at Twizel but there were essential differences; the double unit rooms were contracted out to builders who erected the structure on site rather than in their workshops, thus making it possible for smaller businesses without these facilities to tender for the work. The use of a technology new to the 1960s, gang nailing,[25] was utilised to create a strong timber framework resting on concrete piles. Treated pine portals at each end of the rectangle bookended seven more double sets of portals and these were bolted together at centres of 10 feet 8 inches, a major difference from the Twizel model being that the steel trusses were not needed. The CEBUS structure created a slightly larger space with interior dimensions of 24 x 85 feet 8 inches, that, in its prototypical form, was subdivided into two classrooms of 768 square feet. (**Fig. 67)** As with the Twizel design, the rooms were divided by an area used for an entrance lobby and cloakroom while there was also space for toilet facilities for pupils. The building was more pleasing to the eye than either the prefab or unit room as the use of vertical shiplap timber sections relieved the blandness of asbestos cement board panelling over plywood sarking, while the northern and southern elevations were articulated by marking the segments with the regularly spaced portal frames. The external surfaces of both ends of the building were covered in Flexboard, a fibre cement board product, mounted on a substrate of plywood, thus offering some protection against the cracking and unsightly holes which tended to disfigure some older prefabs. (**Fig. 68)** Pinex acoustic ceiling tiles enhanced working conditions for teachers and pupils, who also enjoyed the benefits of insulation, although the first attempt, the use of aluminium foil in the ceiling, was eventually superseded by fibreglass batts as used at Twizel. Despite these advances, the steel window joinery in the Twizel model was not persevered with as the designers returned to timber, and even the bank of Cooper louvres above the sashes was enclosed in a wooden frame.[26] By the end of 1969, the first CEBUS buildings had been erected at Avondale, Avonhead, Kendal and Oaklands and by 1971, Isleworth, Northcote, Redcliffs and Wainoni as well as the Timaru

[24] The drawings for the Twizel Primary project are in ANZC, CAMQ, 3293, CH564, box 543.
[25] A method used to connect separate timber members with a galvanised steel sheet punched to form several rows of nails. The plate could be driven by the use of a hydraulic press. James McLaren and John S Scott, *The Penguin Dictionary of Building,* Penguin Books, London, 1993, p.297.
[26] The information about CEBUS rooms has been sourced from interviews with Len Stone, Senior Draughtsman during this period, and Warren Thorpe, who started as a Cadet Draughtsman in 1970 and then worked extensively on the CEBUS models in the 1970s and 1980s. The relevant drawings and specifications are to be found in ANZC, CAMQ, CH564, 3253, box 233, Folders 1-11.

schools of Highfield and Waimataitai had one or more of these structures as part of their accommodation stock.[27]

In 1962, the Commission on Education in New Zealand had reported back to Parliament on the state of education in the country; the report was prepared against a background of teacher shortages and low morale; the solutions offered were wide-ranging and, from the government's point of view, expensive. Included was a recommendation that would impact on the quantity of school buildings that would be required.

> That in primary schools, planning to be undertaken for progressive reduction of the maximum size of classes as follows. General classes: first to 40 and then to 35. Infant classes to 30. Sole charge schools to 25.[28]

The capping of class numbers, as opposed to a required average size over the whole school, was a far more effective method of reducing class sizes and would imply a rapid acceleration in the building of extra rooms, and it took the government until 1969 to commit to achieving these targets in a staged process: the 1:35 ratio was to be reached by 1972. The Board's Building Administration Officer prepared a report on the implications of the initiative for the CEB. Using details of the new building code,[29] he noted that the Canterbury district would be required to build 143 rooms over and above its normal programme. He assumed that it was too late to submit an enhanced schedule for the 1969-70 year and if the target were to be met the Board would have to apply for an extra $1.5million in funding which would all have to spent within the ensuing twenty months. His next comment perhaps revealed a scepticism that proved to be well justified. 'It may, of course, be the Department's intention to implement the improved ratio without providing the additional accommodation at the outset.'[30]

The 1970 code allowed many improvements ranging from extra space in the administration wing, as well as larger storage areas, but the greatest change was a rejigging of the numbers and sizes of classrooms. The future decrease in class sizes implied that the size of teaching spaces could reasonably be reduced, although a perusal of the new regulations did not immediately make this plain, as the allowance was expressed as a total area per school rated on the number of

[27] Ibid., Folders 2, 4 & 5.
[28] Commission on Education, Committee Chairman Sir George Currie, *Report of the Commission of Education in New Zealand*, Government Printer, Wellington, 1962, Recommendation 6/4, p.236
[29] The new code was not due to be published until 1970 but its contents, in draft form, had already been circulated to boards' architects.
[30] Report of the Building Administration Officer, J. Lelliott, CEB Minutes (Confidential Section), 11 April, 1969, p.190

'teaching spaces', effectively the number of classroom teachers, i.e. excluding 'walking heads' of larger schools who had no direct teaching duties. Assuming a roll generating ten teachers, the total space allowed was now 6936 square feet, or an average room size of 694 square feet.[31] Any schools with permanent accommodation provided under the 1956 code would have at least some rooms of 768 square feet, implying that future accommodation would have to feature smaller rooms to comply with the total space allowance. Hence the planners developed a Mark 2 version of the CEBUS model; the basic rectangle still contained two classrooms, cloakroom and toilets but the overall size had decreased to measure 24 x 77 feet eight inches, giving an area of 1864 square feet, hence the whole structure was now more intensively engineered as the distance between the centres of each portal was now 9 feet 8 inches. Effectively this version provided an area 9.3% smaller than the Mark 1 model, but over the period 1972-74 it was extensively used as a semi-permanent addition to a growing list of existing schools.[32] **(Fig. 69)**

The 1970 code produced another major benefit; those schools with six teaching spaces or more, now qualified for a Multi-Purpose Room which in most cases would be used as a dedicated library, a facility not then possessed by many primary schools. The CEBUS Mark 3 proved to be an ideal solution to school committees' requests for the upgrade that they were now entitled to. The structure was still based on a standard exterior width of 24 feet while the length of each bay or module remained 9 feet 8 inches and was highly flexible to the point that the new mark, although designed as a single stand-alone room without toilets, could be provided in lengths ranging from one bay of 232 square feet up to an elongated unit of as many modules as the school required. **(Fig. 70)** In practice, many schools used locally raised funds to purchase extra space over and above their government funded allowance of 600 square feet; three and four bay library rooms became the most popular choices. (**Fig. 71)** A sample of schools that were quick to avail themselves of these facilities included Isleworth, Roydvale, Sumner, Sheffield and Thorrington in 1973, and, by 1974, this programme was in full swing; in just one month, June, it was reported that drawings and specifications were being prepared for Cotswold, Culverden District High, Hawarden District High, Prebbleton and Rakaia.[33] A further illustration of the flexibility of this model is evidenced by its adaptation as a staff room at Somerfield.[34] (**Fig. 72)**

[31] The key provisions of the 1970 Code were reprinted along with the Chief Architect's analysis in the CEB Minutes. Building Committee Minutes (Confidential Section), 15 July, 1970. pp. 301-306.
[32] A sample of such schools includes Bamford, Cashmere, Cobham, Cotswold, Hoon Hay, Linwood Avenue, Manning, Merrin, New Brighton South, Russley, Springston, Temuka, Thorrington, Weedons and Woolston. ANZC, CAMQ, CH564, 3252, box 233, Folders 1, 5, 6, 7 & 9.
[33] CEB Minutes, Building Committee Minutes, 17 June, 1974, p.187.
[34] See the revised plan for the Somerfield redevelopment, October, 1977, ANZC, CAMQ, CH690, 2261, box 27.

By 1975, the twilight era of the Board's slow transition from imperial measurements had ended, and the CEBUS Mark 4 was developed as recognition of this change with all dimensions now officially metric; the opportunity was also taken to marginally strengthen the structure by reducing the length of each of the bays by 50mm. The effect was that although the interior width of the building remained 7.210m., the length of the basic eight-bay model had been reduced to 23.2m., giving a rectangular space of approximately 167 square metres, slightly smaller than the Mark 2, its immediate predecessor.[35] The flexibility of the Mark 4 was displayed at Elmwood Normal school in 1976, when a nine module structure was erected, an area of approximately 188 square metres. The northern bay was walled off as a storeroom and the southern end provided toilet facilities yet the seven remaining bays still provided a large space of 146 square metres that could be used for assemblies, drama and musical rehearsals or even for team teaching.[36] However by this date, the CEB Building Department had already been given an opportunity to demonstrate the applicability of the CEBUS concept on a more significant scale than simply providing semi-permanent rooms to add to the accommodation of existing primary and district high schools.

The population of the industrial town of Hornby on the southern outskirts of Christchurch grew quickly in the 1960s and the CEB had catered for this growth spurt by providing a second primary, Hornby South, in 1962 and an intermediate school, Branston, in 1971. The Department had avoided the expense of providing a post primary school by transporting Hornby pupils to Lincoln, Riccarton and even into Hagley High School (formerly known as Christchurch West High School). However as the rolls of these schools increased, their Boards of Governors became increasingly frustrated by the Department's reaction to their increasing demand for more permanent accommodation, the standard response being merely the provision of even more prefabs and unit rooms.[37] In early 1973, the Department's head office was informed by its Southern Regional Office that 'at least two of these boards would resign if Hornby pupils continue to be directed to their schools,' Lincoln for example, already had five unit rooms and five 'substandard prefabs' and had decided to make a stand on this issue.[38] The Department had

[35] By 1979 there were 393 CEBUS relocatables in use in the Canterbury district in comparison to a combined total of 301 unit classrooms and prefabs. CEB to Southern Regional Office, ANZC, CAMJ, CH217, box 54, 29 June, 1979.
[36] A ground floor sketch of this building is in ANZC, CAMQ, CH564, 3253, box 97.
[37] The background analysis and correspondence relevant to the planning and construction of Hornby High School can be found in ANZC, CAAA, CH45, 2261, box 60.
[38] Ibid., Teleprints from Superintendent, Southern Region, to Head Office, 2 February and 31 March, 1973.

planned a secondary school for Hornby based on its then current model, the S68, and scheduled the future school to open in February 1975, but the proposal had been held up by Treasury scrutiny and the Ministry of Works, which was to handle the contract, now confirmed that it was impossible for it to complete the project before 1976 at the earliest.[39] Thus the Department now had an apparently insoluble problem; by 1975 there would be at least 200 third form students from Hornby who would have nowhere to go to commence their secondary education. Luckily a white knight appeared in the form of Fred McCook's CEB Building Department which rescued the Department of Education from embarrassment by undertaking the provision of a 16 teaching-space school based on the CEBUS concept, and moreover giving an undertaking that it would be available by the beginning of the school year in February 1975.[40] The Department realised that such a project would require careful public relations; in October 1973, Head Office contacted the Southern Regional Office with a warning that

> The title 'Temporary School' is not to be used under any circumstances. 'Relocatable School' is not too bad but the preference is to merely use the term 'Stage One-Hornby Secondary School.'[41]

The CEB draughting staff finished the working drawings in less than two months and the tender process was complete by November 28 when Paynter and Hamilton's price was accepted. However, a Departmental official still foresaw impending disaster and fired off an almost hysterical teleprint to the Southern Regional Office; 'the whole deal is getting more farfetched all the time with costs sky high and only a very waffly prospect of completion on time'.[42] Yet enough of the buildings were finished by the beginning of February 1975 to enable the intake of 240 third formers to begin their secondary education, although ironically, when formally opened by the Minister of Education on 8 May, the school was closed to pupils for the morning because of an inactive boiler system, the one structure then on site which was planned to be permanent[43] and an installation that was the responsibility of the Ministry of Works rather than the CEB or its contractor. Mr Amos' audience endured the cold but must also have been confused when he reportedly said that 'The school was relocatable… The buildings were permanent but

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[39] Ibid., TP from Head office to Southern Region, 23 March, 1973.
[40] Ibid., The CEB's formal agreement was communicated to Southern Region on 24 September, 1973.
[41] Ibid., TP from O'Byrne to Southern Region, 18 October, 1973.
[42] The fact that Paynter and Hamilton's tender was the only one, despite the CEB's attempt to interest JJ Construction in the project, made the Department very nervous. The price of $476,000 exceeded the CEB's estimate by over $100,000 and even then, the contractor only undertook to complete the work by the beginning of the 1975 school year subject to the 'availability as required of the various materials in the imperial sizes specified.' Ibid., 28 and 30 November, 1973.
[43] *Star*, 8 May, 1975.

constructed in sections… Their mobility also meant that they could be lifted off the site as they were replaced by permanent buildings.[44]

Yet despite protest by the Post Primary Teachers' Association which remained unhappy about the work still to be done when the gates had opened at the beginning of February,[45] the new school received a positive reception, as did the part played by the CEB. As early as December 1973, the Board's Building Department had been formally and profusely thanked by the Southern Region's Superintendent for its 'tremendous' effort in completing the design and working drawings so that the tender could be let before Christmas 1973,[46] while the PPTA, initially hostile to the use of any form of 'temporary' rooms',[47] paid the CEB designers a backhanded compliment by eventually limiting its attack to the fact, as noted above, that not all facilities were ready at the beginning of the school year. However, the biggest boost may well have been a delayed one as the Canterbury branch of the NZIA formally commended the Board for the quality of its design.[48]

The original brief had to been to design a temporary school, large enough to cater for the third form intake in 1975.[49] At this stage, the Ministry of Works would commence a programme that would, by the end of that year, provide a gymnasium, further specialist rooms and extra classrooms to cater for the next intake of pupils in 1976. The school would eventually be completed by 1981 and the original relocatables could be removed leaving a new secondary school designed to the Department's S68 plan. Thus the 1974 buildings, CEBUS models were designed in a compact mass to enable further construction activity to continue while minimising the impact on staff and students.[50] The site plan shows the school organised along a north-south axis that was given a physical expression by a covered concrete walkway. **(Fig.73)** To the west, Block 1 buildings were clustered around a quadrangle bounded by two double CEBUS

[44] Ibid.
[45] The local branch of the PPTA sent a telegram to the Department claiming that the situation was 'completely unsatisfactory' and provided a list of deficiencies ranging from two rooms still incomplete to lack of changing facilities for Physical Education classes. This telegram was copied by the Department's Head Office and sent by TP to the Southern Regional Office. ANZC, CAAA, CH45, 2261, box 60, 21 February, 1975.
[46] Regional Superintendent, Southern Region to General Manager, CEB, ibid., 13 December, 1973.
[47] There appeared to be some divergence in the ranks of the PPTA. The Canterbury region deplored the use of temporary buildings although John Fletcher, at this stage a member of the National Executive, appeared to be quite receptive to the idea of using relocatables. See the article in the *Press,* 15 September, 1973.
[48] CEB Minutes, 10 December, 1976, p.238.
[49] Allocation of responsibilities evolved from a series of letters and teleprints over the middle months of 1973 and were finally summarised in a document signed by A. Sanders from the Department's Southern Regional Office. ANZC, CAAA, CH45, 2261, box 60, 29 August, 1973
[50] The drawings for Hornby High School are included in ANZC, CAMQ, CH564, 3253, box 471, RS/ 501.

classroom units, an art and crafts room and the administration building. Block 2 was offset to the east of the axis and created a further quadrangle formed by standard sized CEBUS structures, eight bays in length, which provided facilities for a further double classroom unit, a library/counselling area and a music/resource suite. The eastern end of this quadrangle was taken up with 'general purpose' laboratory facilities and here McCook's team demonstrated their pragmatism by using a fit-out plan sourced from the Nelson Education Board.[51] Block 3 was a parallel configuration of specialist rooms: woodwork, metalwork and homecraft. Where smaller buildings were required, for example, a central teacher work space, unit rooms were added.

Where applicable, the CEBUS rectangular shell was internally fitted out to suit the more complex requirements of a secondary school. For example, two thirds or six bays of the standard structure of one building were allocated for library facilities with steel shelves around the walls and room for extra book storage and display if required. To enable shelving and display space to be maximised, fenestration was primarily based on fixed panes and Cooper louvres at clerestory height while artificial lighting was provided by fluorescent fittings. The remainder of this building comprised a guidance counsellor's office with waiting room and toilet facilities, and space had been found for a cleaner's store area. The major entrance to the building was via a lobby that provided access to the library and the guidance suite, yet the privacy of the latter was not compromised. **(Fig.74)**

The Hornby High contract was a test of the CEB's ability to provide appropriate buildings as well as finding a solution to the particular problem posed for pupils and teachers sharing a site that would be subject to on-going construction over the next six years. The concentration of classroom units in a relatively small area offered a coherent concept with something of a village or community dimension, a highly effective approach for the first two years of the life of a school that, at this stage was basically a junior high school. The nature of the buildings themselves caught the attention of Professor Guy Oddie, a consultant to the OECD, who had visited Hornby in 1977. In April 1978, the Director General of the Education Department wrote to the school's headmaster, A.E Britton, explaining that the OECD Steering Committee had requested information on the CEB relocatables to enable the production of a Programme on Educational Buildings report.[52] In his reply, Britton was effusive in his praise for the CEBUS

[51] Ibid., The relevant drawings were titled 'Nelson Type' and attributed to D.H Prince, Chief Architect, and D.J Campbell, Assistant Architect. According to a schedule on the plan, it had first been used in November 1963.
[52] Director General to Britton, ANZC, CANB, CH232, box 73, rec.7/37/3, Part 1, 4 April, 1978.

rooms. He noted their attractive appearance, high quality materials and excellent acoustics. The flexibility of the concept was also appreciated; it had proved easy to add modules to increase the size of buildings. The only drawback was the reliance on the Cooper louvres for cross ventilation as the intense light from the low-angle winter sun created glare which made curtains essential, but could create stuffiness when they were drawn. However, overall, the rooms engendered 'warmth and peace', and 'both staff and pupils are almost unanimous in their praise and approval of the CEBUS section of the school.'[53] It should be remembered that at the time this letter was written, some of the permanent S68 rooms had been constructed at the school and it is not difficult to detect an implied criticism of the latter accommodation. Ironically, in 2012, the 'temporary' structures still had a presence at the school although at least one block had been re-sited on the campus.[54]

By the end of the decade CEBUS had become the accepted solution for primary schools requiring extra accommodation or for the replacement of prefabs or unit rooms as these were gradually written off. The success at Hornby had also convinced the Department of the quality of these relocatable rooms and by the end of 1980, 14 South Island secondary schools had a total of 34 CEBUS rooms.[55] The Department had also written to the CEB indicating an interest in adapting the model for the construction of technical institutes in the North Island.[56] The wider interest was despite the realisation that although 'temporary', the standard CEBUS solution was not necessarily a cheaper option than permanent rooms, a point noted by the Building Committee when the price for the Hornby contract escalated,[57] yet by the second decade of the twenty-first century, the CEBUS relocatable had joined the veranda block as the CEB's most successful architectural development; the evidence for this claim is still available in many schoolyards at both secondary and primary level.

The significance of the CEBUS development should not be allowed to obscure the fact that over the period 1965-80, the Board continued with its 'bread and butter' work that in the context of an ageing stock of permanent building was arguably its core business. As many of these structures were made of quality materials it was judged worthwhile to renovate and refurbish rather than to

[53] Britton to Regional Superintendent, Ibid., 2 May, 1978.
[54] In 1981, a successful application was made to fund this relocation. CEB Minutes, Building Committee, 18 March, 1981, p.44.
[55] Ibid., Survey: Croucher, Southern Regional Office to Head Office, 26 February, 1981.
[56] CEB Minutes, Building Committee Minutes (Confidential Section), 20 June, 1979, p.248. The CEBUS concept was also to have a commercial application; the National Airways Corporation used an adaptation of the model for a Pilot Training School at Harewood in 1975. ANZC, CASY, CH229, box 15.
[57] CEB Minutes, Building Committee Minutes, 2 February, 1974, p.34.

demolish and rebuild; concurrently there was a need to upgrade buildings to the standards of the new 1970 code. An analysis of the tenders received in September 1975 gives some idea of the type of work being carried out by the Building Department at this time. Of the 17 tenders, six were for library/multipurpose rooms, four for administration block improvements, two each for the provision of unit rooms and toilet block additions and one each for paving, a whole block remodelling and the provision of a relocatable room. In other words most of these contracts were likely to have been related to upgrading facilities to the level required by the 1970 code.[58] Two years later, the tenders received for the month of October 1977 involved new work for the Kaikoura Form 1-VII school, three heating projects at existing schools, two each for paving, the demolition of unsafe brick blocks, the construction of new toilet facilities and one each for the provision of a library/multi-purpose room, a sewer connection and a new coal bunker; in short, a wider range of projects, an indication that as the backlog of necessary code upgrades was slowly decreasing, other work could be undertaken.[59]

A more detailed example of an earlier contract that materially improved conditions for pupils and teachers was the case of Morven, near Waimate. A committee complaint in 1969 about substandard facilities led to an investigation by a Board member who, with the Chief Architect, prepared a formal report to the Building Committee; the two-teacher school had cramped conditions, a lack of storage and shelving, inadequate lighting, an absence of sinks in the classrooms and there was no staff toilet.[60] In other words, this, 'forgotten' school had not even been upgraded to the requirements of the 1956 code that was to be superseded by the far more liberal allowances of the new building regulations due in 1970. The original two-roomed veranda block was judged to be still sound and was eventually remodelled on the basis of a 1971 design that increased the size of the senior classroom, in which all the standards classes were taught, from 572 to 710 square feet. The original cloakroom became a book store, the staff room was increased in size, sanitary facilities were included, and new pupil toilets were built and added to the south of the block. (**Fig.75)**

In contrast to improving conditions for a small country school, the Board determined that it needed new facilities for its own use as the office space in Oxford Terrace was cramped and the Building Department had been forced to occupy separate quarters at 324 Worcester Street since

[58] CEB Minutes, Building Committee Minutes (Confidential Section), 19 September, 1975, pp.415-416.
[59] Ibid., 19 October, 1977, pp. 413-414.
[60] Report by J. Ponsonby to the Building Committee, CEB Minutes, Building Committee Minutes (Confidential Section), 20 February, 1969, p.65.

1960. In 1972, the CEB transferred into a new six-storey office block at 50-56 Kilmore Street, a move that allowed the centralisation of the Board's administrative and architectural functions. This structure, designed by local architects Hall and McKenzie, perhaps deliberately imitated the Brutalism of the University and Teachers' College buildings at Ilam; the fair-faced concrete beams exuded, at least superficially, an air of solidity. By 1980, the western end of Kilmore Street presented passers-by with a stimulating contrast between the old Normal School,[61] an essay in crumbling Victorian Gothic revivalism on one side of the road, and twentieth century Modernism on the other. The new building was sold to the AMP Society which leased it back to the CEB on a 40 year term that was guaranteed by the Crown.[62]

In Chapter Six, it was argued that the fifteen years from 1950 were barren of any significant advance in design by CEB architects, therefore the question should be asked as to whether the CEBUS model comes any closer to being judged as an educational equivalent of the revolutionary development in domestic design, specifically that originating in Auckland in the late 1940s and early 1950s. Perhaps the most relevant way to consider this is to ask if the concept of the 'elegant shed' used to describe the progression from simple structures like beach baches and trampers' huts [63] to the much-admired Rotherham and Mallitte Houses (1951 and 1954)[64] can be compared, in an educational context, to the versatile Canterbury relocatable. It is certainly true that the CEBUS product has the appearance of a shed but it would be an exaggeration to term it 'elegant'; in profile it could be mistaken for its dowdier sibling, the unit room, and both of these structures had inherited their looks from the much maligned post-war prefab, that in turn had an obvious genetic link to Second World War army huts. A basic dictum of the Auckland group, that regional architecture should seek to use local materials with a simply expressed form relevant to the purpose was illustrated in its use of timber for framework and cladding but also featured a modernist dimension by the use of glass curtain walls. The CEBUS structure also used timber for framing, portals and even window joinery but the basic cladding was asbestos cement board while timber was retained only as a superficial embellishment although the extensive use of plywood sarking was of course an unseen component that did much to enhance the building's structural integrity. Perhaps the most obvious comparison was in functional interior design; Vernon Brown, a teacher at the Auckland School of Architecture, had

[61] In 1981, work started on the refurbishment and retrofitting of this complex as up-market apartments; by 1985, the first units in the renamed Cranmer Court were on the market.
[62] This building was demolished in 2012 due to damage sustained in the 2010-11 earthquakes.
[63] David Mitchell and Gillian Chaplin, *The Elegant Shed*, *New Zealand Architecture since 1945*,Oxford University Press, Auckland, 1984, p.8
[64] Ibid., pp.32-35.

designed an exemplar, the Hoffman House, that has been described as being 'economical to the point of being physically tight and socially demanding.'[65] Similarly, a major advantage of the basic two teaching-space CEBUS unit was that the planners had also managed to squeeze two sets of toilet facilities, a cloak room large enough to cater for 70 pupils and lobby facilities into an area of approximately 500 square feet, the latter spaces being visually enhanced with the use of vertical rimu boarding. (**Fig.76)**

The Auckland designers had challenged the architectural status quo by showing that there were alternatives to the drabness of post war uniformity of housing styles; their well-planned buildings were comfortable to live in without necessarily being prohibitively expensive. The CEB architectural staff's achievement had been to build structures that were also well designed and constructed but with the bonus of being easily relocatable. The Group's Auckland houses have survived to become architectural style icons of a nascent New Zealand Modernism; the CEBUS units have exhibited a similar degree of influence but in a more utilitarian manner, yet they conform to the requirements of good architecture in that they are highly functional and well engineered. Perhaps the absence of superficial beauty is a less essential ingredient in the recipe for a decent school.

[65] Ibid., p.30

Chapter Eight. New Directions.

Nineteenth century pedagogy had been a teacher-centred process and the pupil's task was to copy, memorize and, on request, to regurgitate the pre-digested material. By the mid-twentieth century there was a growing consensus among academic educationists that a democratic society would be better served if children were taught to think for themselves rather than remain passive accumulators of facts; in essence, juvenile curiosity should be fostered and real learning would be achieved through genuine child-centred inquiry, a process which would be facilitated by the teacher whose former role as an unquestioned dispenser of knowledge should become redundant. This was the view advanced by Neil Postman and Charles Weingartner in their book *Teaching as a Subversive Activity* that summarized the thinking that was to become more generally accepted in the 1970s.[1]

Such educators as Froebel, Montessori and Dewey had, of course, expressed similar sentiments and the British Hadow reports, especially *The Primary School*, 1931 and *Infant and Nursery Schools,* 1933, had recommended the development of 'cooperative teaching'.[2] The favoured approach could include pupils hiving off to perform experiments, reading in quiet conditions, or conducting conversations with their teacher or classmates, methods that were not possible in the conventional type of classroom typically provided in primary schools in New Zealand. These spaces tended to be cramped, characterised by mentally stultifying straight lines and right angles and provided little extra space for libraries or other research materials. The post-war need to build quickly and cheaply had reinforced the likelihood that there would be little change in the predilection of planners to settle for rectangular boxes as the favoured method of new classroom accommodation. Yet, by the mid-1950s, *National Education* was confronting its New Zealand readership with some radically new developments in Britain. Such examples included photographs of Hallfield Primary School, Paddington, with its fan shaped Assembly Hall, a junior classroom block 'swinging backwards and forwards in a narrow serpentine curve' and a further building featuring a facade individualised with an asymmetrical bite-shaped indentation.[3]

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[1] Neil Postman and Charles Weingartner, *Teaching as a Subversive Activity,* Delacorte Press, New York, 1969.
[2] Derek Gillard (2006), *The Hadow Reports: an introduction,* www.educationengland.org.uk/articles/24hadow.html
[3] *National Education,* May, 1956, p.125.

The rigid modernist geometry of the immediate post-war period as exemplified by the Smithsons' design at Hunstanton [4] was apparently under attack. By the mid-1960s, however, the shape of the footprint of British school buildings was becoming less important than the organisation of the interior space.

The traditional model of teacher deployment within a school was being challenged and the notion of team teaching, also termed co-operative teaching or open teaching, whereby a syndicate of three or four teachers would be responsible for a group of pupils, equivalent to up to four conventional classes, became more acceptable. The rationale for this arrangement was that it would provide the flexibility for large and small group teaching and the possibility of individual attention was also created. Teachers could also specialise and use their particular strengths to benefit the wider group of pupils rather than just one conventionally sized class. In 1966, the London Education Authority completed Eveline Lowe Primary School; a large integrated structure designed by David and Mary Medd, which catered for children from nursery age up to senior primary school level. One of the four large spaces in the complex has been described as being

> designed to accommodate 160 children aged from five to eight. This area occupied roughly the equivalent of four conventional classrooms, if desired the children could be gathered together in four groups of forty. [These smaller spaces] were divided up into a considerable number of 'private bays', some of which were carpeted for quiet reading and writing, while others were equipped for practical activities and included sinks and easily cleaned work tops. Mobile furniture units and space dividers were provided to enable the teachers to rearrange the groups as needed… and there was access to a shared veranda so that work could be done outside in fine weather.[5]

Thus the spectacular curvilinearity of Hallfield Primary had been side-lined for a return to the traditional rectangular design although this superficial conventionality masked an internal arrangement that promised far greater opportunities for teachers and pupils to learn in partnership rather than in the rigid mould of the Victorian era of mass instruction. The concepts underlying the rationale for Eveline Lowe and its imitators could be expressed in a simple model summarising the vocabulary of what came to be called the Open Schoolhouse. The elements of the necessary structure could be enclosed in a plain rectangular box but it was the architect's job to express them coherently in a manner that was relevant to the needs and situation of the local

[4] William J Curtis, *Modern Architecture since 1900*, Phaidon Press, London and New York, 1996, p.531.
[5] Malcolm Seaborne and R. Lowe, *The English School: its architecture and organisation*, Vol.2, 1870-1970, Routledge and Paul, London, 1977, pp.176-177.

community. The individual inputs into this process were itemised as G for the general work area, usually the largest space in the building, V for a covered external work area which should grow organically from the larger spaces within, E, the enclosed room for silent study, and P, the symbol for the particular work bays which could feature wet areas and the materials for practical experimentation. Finally it was also important to provide children with a home base, (H) perhaps a cubby hole to store personal belongings, and a small personal space.[6] (**Fig.77)**

The open planning revolution was formally introduced into the world of primary education in New Zealand as a consequence of the changes brought in by the 1970 Building Code reviewed in the previous chapter. The more liberal accommodation allowances were generally welcomed as a long overdue recognition that more teaching spaces and facilities were needed to cater for the greater number of class rooms that would be required because of the improved teacher/pupil ratio. However the real message was in another document, a six page Departmental circular, that introduced the code, a paper titled Educational Requirement that was an attempt to place the physical changes into the pedagogical framework alluded to above.[7] Professor Dobinson of the Department of Building Science of Liverpool University, was quoted as declaiming that it was more desirable that 'children should leave school ignorant but keen to know… than crammed with information, physically illiterate, selfishly competitive and conceited'.[8] Although Eveline Lowe was not directly named, it became obvious that the design features of this school were seen to be desirable and worth emulating. At the end of the circular, it was acknowledged that the text had been 'based largely' on a report written by an inspector employed by the London Local Education Authority; the implication was that as such cutting edge educational philosophy carried the imprimatur of British acceptance, it was now worth adopting in New Zealand.

As a point of interest, two Australian researchers have shown that the supposed interior design innovations at Eveline Lowe had a marked similarity to the exemplars evidenced from transplanted European Modernism via the work of Richard Neutra at Corona Avenue Elementary School, Los Angeles, California in 1935, that in turn influenced the collaboration of Eliel, Eero and Lily Saarinen at Crow Island School, Winnetka Illinois in 1940.[9] Photographs of these

[6] Gerald Melling, *Open Schoolhouse. Environments for Children in New Zealand*, Caveman Press, Dunedin, 1980, p.30.
[7] This document was reproduced in the CEB Minutes, Building Committee Minutes (Confidential Section), 17 March, 1971, a six page insertion between pages 161&162.
[8] Ibid., p.1
[9] Kellee Frith and Denise Whitehouse, Designing Learning Places That Work, in *History of Education Review,* vol. 38, no.2, 2009, p.94.

schools had been widely disseminated through professional educational literature as well as in architectural journals, such as *The New Architecture,* in 1940.[10] These ideas had been publicised in Australia by Walter Bunning and eventually influenced the design of Victorian schools in the 1950s.[11] However, in New Zealand, the Department was remarkably coy about pushing the concept too strongly; the document, Educational Requirement, made frequent references to the architectural pre-conditions of cooperative teaching, but rather than expressing these as directions, they were couched in more tentative terms. The boards were requested to consider experimenting with different sized spaces when building new schools and the Department had repeated its strategy when introducing the 1956 code when pliant boards were approached to develop pilot projects even before the new standards had been officially promulgated.

In 1969, the South Auckland Board had agreed to design a school to show the possibilities of the new code to be published in the following year. The Board's Chief Architect, S.V. Mrkusic, oversaw the planning of a new ten-teaching-space school in Hamilton at Melville Primary School, later renamed Deanwell. His solution showed that he had studied the Medds' model at Eveline Lowe, although his antipodean response was a simpler, more stripped down version, for example there were fewer particular bays for individual work, a refinement possibly due to the fact that Mrkusic still had to contend with the realities of the Department's White Lines funding protocol.[12]

In a discussion at the May 1972 meeting of the CEB Building Committee, it was noted that North Island boards were relatively well advanced in experimentation[13] and indeed it was in this direction that the CEB had already looked for inspiration. The Building Department was aware that the next new school in the Canterbury District would be built to service a large government housing development in the Hoon Hay area to the southeast of central Christchurch, and that this would be the Board's chance to deliver a local response to the challenges of the open planning revolution. The CEB's Building Committee had written to the Hawke's Bay Education Board to ask for a copy of the plans of its prototype at Flaxmere; this new block had been officially opened by George Gair, in his capacity as Parliamentary Under-Secretary for Education, and his speech reflected contemporary Departmental thinking about the issue. He observed that

> traditional buildings… with fixed walls, have developed a permanency

[10] Ibid., p.102.
[11] Ibid., p.103
[12] R.G Wilson & S.V Mrkusic, A New Design for Primary Schools, *Education,* pp.14-20.
[13] CEB Minutes, Building Committee Minutes (Confidential Section), 17 May, 1972, p.356.

> which in turn dictates the teaching programme. Therefore the Board has directed its efforts to ensure built in flexibility, a trend to what architects call fluid or malleable space. Large spaces can be used for many purposes, for example assembly, film viewing, folk dancing and indoor physical education. Cooperative planning of lesson material becomes a reality and instruction can be individualised to a greater degree. The result will be self-discipline (not permissiveness), a natural outcome of the changed pattern of school activity.[14]

The drawings[15] showed a rectangle of 2880 square feet flanked by two lateral adjuncts, each of 216 square feet, that provided toilet and storage facilities. The main area was basically an empty box that was divided into three; the middle portion of the floor, 960 square feet, was designated a wet area and was covered in vinyl, flanked by two similarly sized carpeted areas. The space could be subdivided by moveable partitions but except for two sinks, one at each end of the wet area, there was no sign of any particular bays for individual experimentation or withdrawal areas for quiet reading. Nevertheless, at the end of the 1972 school year, the outgoing principal completed a report to the Hawke's Bay Board in which he provided a list of seventeen advantages of cooperative teaching in an open plan situation, of which 'almost all result in meaningful gains for the children and the professional growth of teachers.'[16] A member of the CEB who took the trouble to visit Flaxmere had been less convinced; in his report he noted a high level of staff dissatisfaction and was struck by the constant high noise level.[17]

From these examples it can be understood that Fred McCook was receiving mixed and confusing messages about open planning and it is not surprising that his eventual design for the school in Hoon Hay,[18] was a compromise between the large open spaces of Flaxmere and Deanwell and the conventional classrooms of the 1951 and 1956 codes. The project at Rowley Avenue had the external appearance of buildings constructed under the above protocols in that the new school initially comprised 12 teaching spaces divided into three parallel north-facing linear blocks, the Junior block, the most northerly, being offset to the west to allow the buildings provided for the Lower and Upper Standards more access to the sun. Each four-space block was entered from the north via one of the two recessed modules providing lobby and cloakroom facilities. To the south

[14] Extracts from the transcript of Gair's speech, Flaxmere School, ANZW, ABEP, W4262, 7749, box 67, 12 July, 1971.
[15] Ibid.
[16] Ibid., W.R Mosley to the General Manager of the Hawke's Bay Education Board, 11 December, 1972. Mosley had just been appointed to the inspectorate; his enthusiasm for open plan education would not have handicapped his elevation to this position. See also the letter from the HBEB to the Department in which Mosley's contribution to the development of open plan education in Hawke's Bay was noted in favourable terms, ibid., 9 January, 1973.
[17] O.S Priest, report to the Building Committee, CEB Minutes, Building Committee Minutes, 21 July, 1971, p.499.
[18] The drawings for Rowley Avenue School are in ANZC, CAMQ, CH564, 3253, box 467.

of each of these areas was a further space, approximately 400 square feet, designated for resource storage and also containing a sink for water-based activities. Because these utility areas were not partitioned from the rest of the room, they were effectively additional to the 638 square feet available for the teachers and pupils in each of the two adjacent rooms. The middle two spaces of the four in each of the blocks for junior and lower standards could be transformed into a double-sized area by folding back panelled sliding doors, however no such facility existed for the higher standards; in this block there were no physical divisions either permanent or moveable. **(Fig.78)**

Rowley Avenue also displayed other changes to what had become the status quo; the space saving impetus of the 1956 code that had resulted in pupil toilets being placed immediately adjacent to, and entered from the south side of the classroom, had been replaced with a single detached block of sanitary facilities per each four-class wing. Pupils accessed these by walking westwards along an attached covered way; those in the easternmost room had to travel at least 140 feet, possibly not the ideal situation for the youngest juniors. Another change was the relegation of the administration area and associated staff facilities into a detached block on the periphery of the schoolyard; only the dental clinic was more remote from the rest of the school.

Of the three classroom blocks, only that designed for the upper standards was an uncompromising attempt to force teachers to engage with the team teaching approach. The creation of an area of 1276 square feet almost demanded all 140 pupils being 'taught' *en masse* before dispersing into smaller groups. The noise problem would hopefully be mitigated by the use of carpet tiles laid over the concrete pad although vinyl was used in the wet areas around sinks. The school was not formally opened until July 1974, eighteen months after opening its doors to pupils, but Norman Kirk, the Prime Minister and local Member of Parliament, made only a one-line mention of the fact that Rowley was the first example of the open plan structure in the Canterbury District. In this perfunctory reference he was merely following the background notes provided by the Board;[19] according to the *Press* reporter, he then spent the major part of his speech urging that the local community should not develop the mind set of

[19] ANZC, CAMQ, CH690, 2261, box 25, Rec.7/8, Part 1. CEB to Department, 21 May, 1974. The formal opening of the school was originally scheduled for 31 May, but the ceremony was postponed until 19 July.

becoming an 'industrial filing cabinet' and he pledged the attendance of several cabinet ministers at an impending meeting to discuss the area's social problems.[20]

In 1973, St Albans school was fortuitously due for remodelling and McCook, with significant input from senior draughtsman Len Stone, determined to show that this process could be used to develop an appropriate vehicle for cooperative teaching. There is a nice irony in that some of the rooms involved were hangovers from the last revolution more than a generation before; these were examples of Penlington's individual bungalows with attached verandas, designs that had been pulled off the shelf by John Bigg when extra permanent rooms were required in the 1930s.[21] These structures were to be made over to become key parts of the first two stages of the redevelopment of the 1970s.[22] Each of the two new blocks, denominated A and B for planning purposes, was anchored by two existing rooms left in the situation in which they were originally placed, parallel but offset, and about 45 feet apart. (**Fig.79)** The spatial intervals were filled in by moving two more rooms from the eastern side of the schoolyard and adding one to each of the blocks; the resulting gaps were then closed with new work, comprising another classroom and lobby space. Thus the two finished blocks, completed by the end of 1975, had been cobbled together, and presented as a combination of 1930s bungalows, that after 40 years of detachment, were now joined together with modern techniques and materials, although in recognition of the excellent condition of the external rimu of the older rooms, the new work was primarily clad in weatherboard, an unusual concession in a decade when cement or asbestos board was gaining acceptance as the default veneer. This visual harmony, did not however apply to the elevations, the northern and southern perspectives were dominated by the stately profiles of the rooms built in the 1930s, the 12 foot stud height topped by hipped roofing while the new flat-roofed additions, punctuated by domed skylights, looked out of scale and stylistically unbalanced.

In 1974, the Building Department was responsible for another imaginative remodelling contract at Greenpark, a small rural school southeast of Christchurch that involved the use of a still sound veranda block as the basis for an architectural compromise that could facilitate an open teaching

[20] The report of the opening of Rowley Avenue School was accompanied by a photograph of an apparently bemused Prime Minster regarding pupils working while sprawled on the floor. *Press*, 20 July, 1974.
[21] These rooms were built between 1933 and 1939. ANZC, CAMQ CH564, box 282, Folder 1.
[22] In both cases the contractor was Duffield Construction. The first contract was signed on 18 March, 1974 and the second on 28 January, 1975, Ibid., Folder 2. The drawings for both these contracts are in this folder.

style without going to the extremes of Flaxmere's barn-like solution.[23] The wall between the two existing classrooms was removed and replaced by a pod of three work bays, a sink and a door-width access way between the rooms. Although there was no designated resource area or withdrawal room, there was easy access to a carpeted book room, a space of approximately 250 square feet that could serve both functions in a small school. **(Fig 80)** In terms of function, both these complexes were, perhaps, more appropriate for the purpose than the buildings at Rowley. For example, at St Albans in Block A, two of the four teaching spaces were complemented by the north-facing verandas of the 1930s rooms left *in situ,* thus conforming to the ideal of small areas usable for group activities; some of the lobby areas could also conceivably have been similarly utilised. At Greenpark the veranda had also been left, a decision that would continue to enhance the versatility of a much smaller suite of rooms. In the larger school, two work bays each provided two sinks in wet areas of approximately 100 square feet. The largest space, the new classroom, provided a clear area of 768 square feet for whole- group activities and it is likely that the room would have been kept clear of furniture for this purpose.[24] However the strength of the St Albans remodelling project, as a one-off design providing so many nooks and crannies for small group work, could also have been a weakness; active supervision of up to 140 children by four teachers would have been a trying process despite the former Under-Secretary George Gair's vision of self-disciplined groups perpetually and naturally on task. Management of pupil behaviour in the Greenpark unit would have been more straightforward for the two teachers working in the unit although it could have involved oversight of three relatively discrete areas if the book room was used as a withdrawal area.

While the above projects were in the process of construction, the prototype for the Board's standard new open plan school was being developed. The designer was John Sinclair Arthur, who before employment with the CEB, had worked in private practice in Timaru and had had experience in England.[25] Arthur rejected the linear approach used at Rowley Avenue and adopted the concept of a square of approximately 3760 square feet that included porches on the

[23] The drawings for the 1974 contract are located at ANZC, CAMQ, CH564, 3253, box 121. It is not known who was responsible for the concept sketch but the working drawings were completed by Monty Shore, Senior Draughtsman, who had previously worked for the Ministry of Works. (Information from Peter Greening.)
[24] The District Senior Inspector's Building Advisory Committee, a group of Departmental and Board officials, CEB architectural staff and teacher representatives, had recommended a ratio of one 'desk space' per two children for Standards 1-4, and one per 4 for infant classes as being appropriate for open planned buildings. CEB Minutes, DSI's Building Advisory Committee Minutes, 29 May, 1974 (Confidential Section), p.296.
[25] Information supplied by Peter Greening. (Arthur, 1921-1995, retired from the CEB in 1981. His position was styled Senior Architect which, in terms of responsibility, placed him under the Chief Architect and the two Assistant Chief Architects)

northern, western and eastern elevations that provided egress from each of the teaching spaces and natural light through the use of glazed sliding doors. Pupils would have been encouraged to enter the building though a separate door on the west side of the structure that led directly into cloakrooms, toilets and a space for bag racks. Corner gardens and paved areas around the periphery of the square added to the impression of total design encapsulating interior and associated external spaces. The internal space provided a gross area of 2850 square feet, and after providing for toilets, cloakroom and entry lobby, a net teaching area of approximately 2200 feet was available in three equally sized teaching spaces and an additional resource room which was clearly expected to be multifunctional as the shelving was complemented by a blackboard and carpet; the latter was the only possible situation for small group teaching away from the hubbub that was a natural consequence of the nature of open planning. However, when the weather permitted, it would have been possible for children to use the porches for small group activity.[26] **(Fig. 81)**

The external appearance of the structure was distinctive enough to earn the in-house description in the Board's Building Department as the 'KFC' building because of its similarity to the retail outlets of a chain of purveyors of fried chicken that was then in the process of establishing itself in New Zealand.[27] Laminated timber beams, 17 x 5 and a half inches, supported a hipped roof structure that sloped upwards at a gentle 14 degrees towards a large square lantern, consisting of fixed panes and Cooper louvres; this was seen to be a cost effective way of providing natural illumination over the windowless resource room. Fenestration of the building was not extensive and a cursory glance at the elevations reveals that apart from the sliding doors onto the porches, most of the external surfaces featured asbestos board panelling rather than windows. From an external view, the architectural intention for a building based on the concept of classrooms without walls is ambiguous; on one hand the effect is almost bunker-like, yet the interaction of light and space where the sheltered porches are inserted into the bland veneer, presents a sculptural quality which could be seen as an invitation to enter the new world of open education. **(Fig. 82))** The internal perspective is dominated by the central lantern that also provided borrowed light for the teaching spaces via a timber-framed light well with glazed sides, while the Cooper louvres of this feature could also provide some ventilation, although it would have been difficult to create a cross flow of fresh air when the porch sliding doors were shut. Later open plan buildings varied in some respects but Arthur's model remained the basis of these structures

[26] The drawings relevant to the Harewood project are at ANZC CAMQ, CH564, 3252, box 125, Folder 2.
[27] Interview with Ross Megget, Assistant Chief Architect at the CEB from 1974 until 1989.

built in the Canterbury district, although, from the mid-1970s, the CEB's commitment to the concept was increasingly questioned by some school committees, teachers and Board members

The effective prototype of Arthur's model, in Christchurch, was constructed at Harewood School in 1974, and naturally aroused some interest among committees from other schools that were scheduled for similar developments. In his history of the Cashmere Primary School,[28] John Small examines the background to the clash between the CEB and representatives of the local community over this issue. It is still not clear whether the school committee's objection was based on a rejection of the theory of co-operative teaching or their dislike of the building designed to facilitate this process. Certainly a group of Cashmere parents described the Board model as 'architecturally and aesthetically an eyesore,' an impression gained after inspecting the partially built block at Harewood. The Board took exception to what they saw as the Cashmere group's intransigent attitude in the correspondence war that involved the Board, the school committee, the local MP, the Department of Education including the Minister, and the writers of numerous letters to local newspapers. Eventually the Board won the battle when it was pointed out to the Cashmere committee that if the planned building was refused, it would imply at least a two year wait until a new one could be designed and that meanwhile the school would have to continue to put up with an existing building that had been acknowledged to be seriously deficient.

Waimairi, however, used passive resistance to defeat the addition of the unwanted building; the school committee, presented with the plans for approval, was still debating the issue six months later until finally deciding that 'conventional classrooms' would be preferable. The Board minutes reveal an almost palpable frustration,[29] not only with the Waimairi committee, but also with the Department, as the latter would not change its position that it 'encouraged preference' for the construction of open space buildings but refused to rule that such action was mandatory when obsolete classroom blocks were due for replacement.

Teachers also had concerns about the new educational architecture and its implied change in pedagogical technique. The NZEI had formulated a policy by 1975 and did not change it for the

[28] J.J. Small, *Here on the Hill: a century of Cashmere's primary school and community,* Cashmere Primary School Centenary Committee, Christchurch, 2000, pp.118-123. The material relating to Cashmere in this paragraph is based on this publication.

[29] For example, the statement made by David Waghorn, the Chairman of the Building Committee, that the time taken by school committees to consider plans was excessive to the point that 'the Board may have to direct the Chief Architect not to consult.' CEB Minutes (Confidential section), 23 April, 1976, p.107.

rest of the decade. The statement commenced with the assertion that the union did not oppose the construction of open plan schools but demanded consultation 'from the earliest stages of planning and design' and that the buildings should be easily convertible back to conventional classrooms. Suitable furniture should be designed and supplied[30] and adequate resource and withdrawal rooms should be provided. In new and remodelled schools larger than four teaching spaces, conventional buildings should also be provided as part of the allocation. Above all, the open school approach should be subject to a 'continuing programme of evaluation.'[31] The latter concern had already been addressed by the Department with the creation of a research committee[32] to report on open plan education, a ground-breaking move in the history of New Zealand education, as the Director General, Bill Renwick noted

> It is the first time that a new development, in its early formative stages, has been made the subject of systematic study, with a prior commitment that the results would be published.[33]

Considering that the committee was stacked with Departmental representatives, the key recommendation that 'the development of open plan education be continued' was not surprising;[34] however, many of the recommendations related to buildings were very close to NZEI policy. The concept of consultation at the beginning of the planning process, rather than after it, was endorsed, as was the ideal of design being carried out at board level rather than on a national basis. The size of open plan units was to be limited to catering for no more than four conventional classes and each unit should have 'at least one fully enclosed withdrawal area large enough to accommodate at least fifteen pupils in a conventional teaching situation.' Units should be designed to 'minimise auditory and visual distraction for individual study, small group instruction and large group activity.' A dedicated resource area was seen as vital as were facilities set aside for teachers to prepare lessons. It was important to provide suitable furniture and storage for children's belongings and adequate display areas for their work. Moreover any boards that had already built units which did not meet these criteria should modify the buildings

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[30] The Building Department made a significant effort in this respect. The St Albans drawings show the specifications for 'tote trolleys' for moving stationery around the complex while experimentation was also conducted with low tables with the top one foot above floor height. Later, trapezoid shaped desks which could be arranged in a variety of configurations were provided. St Albans School, ANZC, CAMQ, CH564, box 282, Folder 2.

[31] The NZEI policy statement appeared in *National Education,* July, 1975, p.86

[32] The committee of thirteen included eight from the Department of Education, two from the NZEI, one of whom was from Canterbury, one academic, Peter Cameron, who acted as a consultant, one board architect from Wellington, and David Wilson, the General Manger of the CEB; the latter two representing the Education Boards' Association. Research Committee on Open Plan Schools, *Report on Open Plan Education in New Zealand Primary Schools*, Department of Education, Wellington, 1977, p.7.

[33] Ibid., p.8.

[34] Ibid., p.9.

until they conformed.[35] However, it should be remembered that there was no automatic linkage between the Department's Research Committee's recommendations and the provision of extra funds to carry them out; ultimately such a decision was more heavily influenced by Treasury bureaucrats rather than the Education Department officials.

The last new primary schools to be constructed by the Canterbury Education Board were Parkview and Queenspark, both built to serve the rapidly growing Parklands area to the north-east of the central city. Both were very much exemplars of the open plan concept and the latter school is significant as it was designed with six permanent teaching spaces, all in one structure and was expanded even more when a second contract increased the size of the original building to one of nine such spaces.[36] Arthur's basic model of three teaching spaces had been configured in a continuous interlocking form which meant that nine of the original eleven teaching spaces at Queenspark were open plan, the exceptions being the two rooms in a standard CEBUS Mark 4 unit. However the CEB's model open plan unit could not accommodate two of the Research Committee's most important recommendations; neither preparation facilities for teachers, nor the withdrawal room was provided. Even by 1981 these problems had not been solved; at Beckenham, an old brick block was replaced by Arthur's basic three-space model[37] and included a carpeted 20 square metre space labelled 'Withdrawal.' However on closer inspection the effective space was reduced because of the presence of coat racks along each of the longer walls, and worse still, the room was a natural pathway for pupils based in Space Three going to and from the toilet**.** This would not have been the place for effective small group teaching; it was a *de facto* cloakroom of the type used in the Dominion Basic Plan in the early 1950s. A similar unit was constructed for Central New Brighton in 1981[38] and the same situation applied; despite its label, the 20 square metre space was subject to the same constraints as at Beckenham.

In 1980, Gerald Melling [39] reviewed the varying types of open plan structures designed by the ten education boards. He was critical of most of them in that he saw little evidence that

[35] Ibid., pp.13-16.
[36] The first contract was signed on 8 April,1976; the builder was Duffield Construction. ANZC, CAMQ, CH564, 3253, box 434. The second stage was approved on 21 November, 1977, the contractor was LR Builders, ANZC, CAMQ, CH690, 2261, box 24.
[37] ANZC, CAMQ, CH564, 3253, box 51, RS/038.
[38] ANZC, CAMQ, CH564, 3253, box 194, RS/195, Folder 2.
[39] Melling (1943-2013), was born in Liverpool, and in New Zealand was briefly assistant editor of *Designscape* (1975-76). After qualifying as an architect (Auckland University), in 1976, he worked for the Wellington Education Board and in 1990 formed Melling Morse Architects in Wellington. Claire McCall, Gerald Melling: Building on a feeling, *New Zealand Herald*, 11 September, 2012.

principles on display at Eveline Lowe had been assimilated and applied, and the Canterbury model, in particular, was excoriated.

> Canterbury's contribution to the official dream of primary school utopia has been to produce one *standard plan.* (Melling's emphasis). This mindless misunderstanding of the principle of flexibility has resulted in a three classroom pod, with the three class spaces rotating around a forlorn little resource room at its centre; its only deference to versatility lies in its ability to link up with another pod to form a six-class unit (and therefore compound the inadequacies of the three-class arrangement).[40]

Melling argued that boards should be prepared to design each unit as a 'one off' as every social environment and site was different although in the Christchurch context, with the notable exception of Cashmere, all open plan units were built on flat sites. He was also concerned that the Board's architects had made little attempt to recognise the fact that small children could be negatively affected by a structure constructed to an adult scale.[41] He cited a building he himself had designed as an exemplar using volume more imaginatively to create child-sized spaces. Miramar School, South Wellington, was a remodelled conventional five-classroom block that used mezzanine floors to create a 'building within a building' and, he claimed, managed to provide all the features recommended by the Department's research committee.[42]

Despite the Department's belief that the philosophy of the open school was an appropriate technique to expand the minds of future participants in the democratic process, it was becoming obvious by the end of the decade that the revolution was starting to stall. Bennett and Hyland placed this issue in a wider context when they claimed that although New Zealand was a late convert in comparison with the USA, Canada and Britain, the pattern was similar in that early 'evaluation' of the new system in academic literature tended to be a presentation of an 'unquestioned plethora of philosophical beliefs, given as reasons for building open plan schools.'[43] Eventually, however, there is a realisation that 'Architecture can certainly modify the physical environment but not necessarily the activities which take place in that environment.'[44] Thus it appears that the Department of Education made a strategic error in assuming that providing open plan buildings would automatically lead to teachers successfully adopting open teaching methods, a problem which was exacerbated by the suspicion that even teachers who

[40] Melling, p.51. Melling apparently did not realise that Canterbury had 'compounded' the problem even further by creating nine-space complexes.
[41] Ibid., pp.30-32.
[42] Ibid., pp.90-91.
[43] Neville Bennett & Terry Hyland, Open Plan -Open Education? *British Educational Research Journal,* vol. 5. no.2, 1979, p.159.
[44] Ibid., p.164

were receptive to the new pedagogy found the new buildings less than appropriate for the task for which they were designed.

In September, 1981, the chairman of the Flaxmere School Committee took the extreme step of writing directly to the Minister of Education, explaining that over the last six years, his committee had 'inundated the Hawke's Bay Board with the deficiencies of the original open plan block built in 1969' and was clearly frustrated by its lack of action in failing to remodel this building.[45] The CEB Building Committee was also fielding complaints about its open plan buildings; in February, 1979, the principal of Rowley School, the first in the district designed to offer open plan education, had requested that the spaces be partitioned.[46] The matter was next discussed at a full Board meeting when it was noted that a formal inspection of this school had revealed a large degree of dissatisfaction among the teachers leading to high staff turnover and some local parents sending their children elsewhere.[47] Morale at the school was so low that Board member, Nedra Johnson, stressed that urgent action was required in providing the partitioning necessary to create conventional classrooms.[48] By May, the falling roll had created a situation whereby the CEBUS relocatable had to be removed,[49] while ironically the permanent open plan blocks, the claimed cause of the problem, remained, still unmodified, although it was resolved that 'every effort should be made to complete the proposed remodelling'.[50] In 1980, Cashmere, the school that had received an open plan unit despite strenuous protest, applied for funding to erect partitions between teaching spaces,[51] and in 1981, the Opawa school committee made two attempts to have similar work approved.[52] On the other hand, Harewood, the prototype school, maintained the unit in its original form until 2000 before partitions were erected.[53] In retrospect, a minute from the District Senior Inspector's Schools' Development Advisory Committee, appended to the Building Committee's records in September 1979, is a revealing indicator that the open plan units were not being used in the spirit in which they were

[45] Dowie to Hon. Mervyn Wellington, ANZW, ABEP, W4262, 7749, box 67, 22 September, 1981.
[46] CEB Minutes, Building Committee Minutes (Confidential Section), 2 February, 1979, p.29.
[47] CEB Minutes (Confidential Section), 4 April, 1979, p.108. Later in the year a parent wrote to the CEB complaining that her children were not learning at Rowley because of the open plan system 'when all work was done on the floor.' CEB Minutes, Professional Committee Minutes (Confidential Section), 18 July, 1979.
[48] This was not a new problem. A teacher, who started at Rowley on 9 September, 1974, wrote to the CEB two months later requesting a release from the two year clause because she did 'not enjoy working in the open plan situation'; her request was granted. CEB Minutes, Professional Committee Minutes (Confidential Section), 31 November, 1974.
[49] It should not be assumed that local antipathy to open plan schooling was necessarily the sole cause of the decline in the school roll. The type of demographic change, alluded to in the previous chapter, was probably also a factor.
[50] CEB Minutes, Building Committee Minutes (Confidential Section), 16 May, 1979, p.183.
[51] Ibid., 3 March, 1980, p.82
[52] Ibid., 19 August, 1981, p.370 & 23 October, 1981, p.493.
[53] Information received from Julie Greenwood, Principal, Harewood Primary School, 13 July, 2012.

designed: 'Open plan schools are requesting extra furniture so that all pupils may have a table and chair to sit at, at all times throughout the day.'[54] There was no change to the Board's policy at this stage, but the fact that these requests were made, shows that staff in at least some of the district's open plan units wanted to retreat to the days of all pupils sitting at desks, thus hinting at a desired return to conventional classrooms.

An intriguing aspect of the open plan issue in Canterbury was the role of Fred McCook, the Chief Architect over this period. In an interview with this writer, he revealed a deep personal conviction that team teaching was insurance against the risk of a poor relationship between children and their classroom teacher blighting some pupils' attitude to education; the open model meant that there was good chance that such children could relate more positively to one of the other teachers in the syndicate. He felt that a negative reaction by teachers destroyed the concept of open plan education in Canterbury, an opinion that was supported by Ross Megget, his Assistant Chief Architect.[55] It is possible, however, that teachers and school committees resented the architectural activism displayed by McCook and his team in continuing to supply an open plan model that was attracting criticism for its lack of the features recommended by the NZEI and the Department's research committee. Certainly the Chief Architect's concept of consultation with school committees tended to be limited to discussing the best site for the new building, followed eventually by a sketch plan that would be presented to the committee for approval. However when the building was a standard product, for example a CEBUS or unit room, (and later the open plan unit), all of which already had official approval, any further discussion was deemed pointless.[56] The Chairman of the Building Committee had previously admitted to some embarrassment on occasions when the sketch plan was sent to the committee at the same time that the tender notice was advertised.[57]

The District Senior Inspector's Schools' Development Advisory Committee, by now known as DSISDAC, was supposed to provide a vehicle for airing teacher views but in Canterbury, its influence was limited. In 1978, this committee was chaired by the District Senior Inspector of Primary Schools, the Secretary was the Board's Executive Officer (Buildings), and the Board's

[54] CEB Minutes, Building Committee Minutes (Confidential Section), 19 September, 1979, p.362.
[55] Interviews, Fred McCook and Ross Megget. An example given by McCook of teacher sabotage of the new concept was finding that a staff member at Rowley School had used a piano to jam shut the folding door between two spaces.
[56] This type of consultation had been discussed and approved by the Board. CEB Minutes, 19 November, 1971, p.254.
[57] Report of the Chairman of the Building Committee dated 18 February,1972, Building Committee Minutes (Confidential Section), 19 April, 1972, pp.258-59.

Chief Architect completed a powerful influence from the Department and the CEB. Teacher representatives comprised one from the pre-school sector, two from the NZEI and one representing local principals. When the teacher representatives voiced some unhappiness at their lack of power to effect change, they were reminded by the chairman that 'the committee was not the place to challenge the workings of the Board's officers… such concerns would be between the District Senior Inspector and the Chief Architect.'[58] The committee could decide whatever it liked, the teacher representatives had a potential majority, but any resolutions were only advice to the District Senior Inspector who could choose to modify or even ignore it. The fact that the shortcomings of the Harewood model had not really been addressed by 1980 appears to be evidence of a degree of paternalism on the part of the Senior Inspector and the Board's building team. The architects had designed a building that in their professional judgement would fulfil the requirements of open plan education and it was not for teachers to query matters about which they had no technical expertise. McCook could well have argued that the designs had satisfied the CEB Building Committee, the Board itself, the District Senior Inspector, the Regional Architect at the Southern Regional Office and ultimately the Department. Perhaps the lure of the model was partly financial, local builders were certainly interested in tendering for these units and the Board was generally happy with the prices received. For example, the contract covering the second Queenspark unit was let at a net cost per cost place figure of $808.90 at a time when the Canterbury cost place figure was $826.[59]

In 1981, the replacement of an old brick block at Timaru West, gave the Board's Building Department a chance to atone for the problems inherent in the Harewood model. Arthur's revamp was radical and appeared to be a genuine effort to assuage the grievances of teachers and committees.[60] The complex included four teaching spaces but teachers were given a genuine choice as to the degree of cooperation they wanted to undertake; each space was readily enclosable with sliding doors. The blatant misrepresentation of labelling a cloakroom as a withdrawal space was corrected as the former facilities were now sited independently of the main building, linked by paving and verandas to the south. The withdrawal room was a 16 square metre space next door to a 7.2 square metre teacher resource area with a work bench and personal lockers, while a central resource room of 14.5 square metres provided genuine storage capacity. The exterior elevation had more of a domestic feel, the broadly L shaped structure

[58] Minutes of DSISDAC, CEB Minutes (Confidential Section), 17 November, 1978, p.473.
[59] Application for Financial Authority re Queenspark School, ANZC, CAMQ, 2261, CH690, box 24, rec.7/8, 21 November, 1977.
[60] The drawings for the Timaru West block are at ANZC, CAMQ, 3252, CH 564, box 316.

featured gables and more extensive fenestration; the cladding was weatherboard, albeit an asbestos product rather than the more homely timber, a material now unaffordable for its initial cost and high maintenance requirement. The DSISDAC group ventured south to hold its October 1982 meeting at the new block in Timaru West; the members were immediately impressed, noting, *inter alia*, the 'excellence of the withdrawal room' as well as the introduction of the teacher resource room which they were sure would be valued by staff. The entry and display foyer central to teaching spaces 2 and 3 was also approved and overall it was noted that 'the domestic nature of the design makes it aesthetically pleasing.'[61] Four days later the DSISDAC's chairman, wrote to the CEB General Manager, congratulating the Board on the 'quality of the facility' and commending the architects for their 'full consideration' of the comments made by teachers**.**[62] **(Fig. 83)**

However there is more than a suggestion that by this stage the open plan revolution had run its course. In a paper delivered in December 1982 to the New Zealand Association for Research in Education,[63] Cameron and Robinson noted that the number of open plan units that existed in 1975 had increased from 200 to 600 seven years later, and that the boards were still largely supportive of the concept. Their conclusion, however, was a masterpiece of academic obfuscation; they claimed that their survey

> had found that open plan education is still very much with us in New Zealand primary schools, but the philosophy has been modified to take into account the needs and preferences of teachers, and the desirable trends in building design. A future study could well look directly into variable space classrooms, to observe how teachers operate and how the pupils learn.[64]

This statement could well be paraphrased to read that there were more open plan units in New Zealand schools than there had been seven years before although some of these buildings had been partitioned to create conventional classrooms, moreover in the absence of any evidence the researchers could offer no opinion as to the type of teaching being undertaken in these units. The perfunctory nature of the Cameron/Robinson paper did not impress some members of the CEB; at a special meeting held to review this research, several were openly sceptical of its scope

[61] Minutes of DSISDAC, CEB Minutes, Building Committee Minutes (Confidential Section), 14 October,1982, p.541.
[62] District Senior Inspector of Primary Schools to General Manager, ibid., 18 October, 1982, p.542.
[63] Peter E. Cameron & Graham H. Robinson, *Current Operation of Open Plan Classrooms in New Zealand,* New Zealand Association for Research in Education, Christchurch, 1982. This report took a long time to filter through the system. The Christchurch Teachers' College Library did not receive a copy until September 1983, as evidenced by the accession stamp, and the CEB did not discuss the report until July 1984.
[64] Ibid., p.16.

and methodology, for example Nedra Johnson claimed that it did not present any useful findings about the value of open education.[65] This view was shared by the Education Boards' Association which decided to 'press for a proper evaluation as it affects teachers and pupils' and added that they wanted this investigation to be carried out by the New Zealand Council for Educational Research.[66] Thus, even 15 years after the first open plan units had appeared in New Zealand, there was no valid research analysing the extent to which open teaching was being employed, and certainly no evidence at all if the schools that were practising it had done so successfully.

Seven years before, in a perceptive article written for *Education*, Peter Francks [67] had been supportive of the concept of open education but claimed that it was the state of mind exhibited by teachers that was the key to it succeeding. He had foreseen a problem as the Department had encouraged the boards to provide open plan buildings without first 'imposing' the philosophical rationale for the sort of teaching it wished to be adopted.[68] The danger according to Francks was that in the eyes of local communities and even in the teaching profession itself, the mere provision of open plan buildings would be equated with the practice of open teaching. Perhaps the ultimate lesson of the construction of open plan schools is that there are limits to the extent that the nature of school buildings alone can modify educational outcomes. The CEB provided an imperfect structure that was finally improved, but in the absence of a philosophically attuned and appropriately trained teaching profession, the physical nature of the school building was effectively irrelevant. By implication, the investment in 'suitable' infrastructure should have been associated with prior expenditure on adequate professional preparation, not only for teachers in training, but more importantly on rigorous in-service courses for those who were already working in the profession. Cameron and Robinson reiterated this point in their 1982 survey when they commented that the reluctance of some teachers to become involved in open teaching was a function of their lack of training in this concept;[69] in other words, teachers wanted to continue to teach in the way they had been taught to teach.

[65] CEB Minutes, Building Committee Minutes (Confidential Section), 11 July, 1984, p.262
[66] Discussion of EBA Minutes, CEB Minutes, Professional Committee Minutes (Confidential Section), 8 August, 1984, p.292
[67] Peter Francks, Open School Bandwaggon, *Education*, No. 5, 1975, pp. 3-14.
[68] Ibid., p.4
[69] Cameron & Robinson, p 6.

Whether the CEB would have continued with its policy of building more open plan units was a decision that it did not have to make; the fall in rolls in the late 1970s and the 1980s[70] halted the need for new schools and would create a situation whereby existing schools needed fewer classrooms while older structures could be demolished without the need to replace them with permanent buildings. Nevertheless, the physical evidence of the failed experiment still exists in Canterbury schoolyards, although it is fair to say that this is more of a testament to the enduring physical nature of the now partitioned, asbestos-clad buildings rather than to any lasting dedication to the open education principles that prompted their construction.

[70] This phenomenon will be further discussed in Chapters Nine and Ten.

Chapter Nine. The post war intermediates.

Even in the dark days of early 1942, when the Japanese advance into the Pacific was leading to a flurry of air raid shelter construction in Christchurch schoolyards, the Department of Education was pondering its strategy for the future requirements for intermediate schools in the city. K W Oldfield, from the School Buildings Division, was despatched from Wellington to meet a group of senior CEB employees including Rowley, the Secretary Manager and Bigg, the Board Architect. Oldfield's brief was to analyse the current situation and to present his recommendations for future action to the Departmental Architect.[1] At this stage, Christchurch had two intermediate schools, both designed by Bigg in the 1930s, Shirley and Christchurch South; by 1942 their rolls were 333 and 611 respectively. Oldfield noted, however, that the increased birth rate from 1936 would soon create the need for extra schools of this type in a city already under pressure for primary school accommodation. He recommended that plans should be made to build new intermediates to serve the suburbs of Opawa, Linwood, Riccarton and Elmwood, the latter to cater for an area stretching from Papanui to Merivale and St Albans. No specific time-line was advanced but, as he was concerned about the problems that would occur when the babies of 1936 had progressed to the senior standards, presumably 1947 was a critical date. There is some evidence that the CEB did start the planning process promptly for the two schools it deemed most urgently required as it moved to acquire the necessary sites; negotiations with Sir Heaton Rhodes opened in 1943 for his house and land in Merivale for the school, at this stage tentatively called Elmwood Intermediate,[2] but the densely settled Linwood area was more of a challenge and it was not until 1946 that a six acre site in McLean Street was secured.[3]

However another problem was more intractable; the Board's Building Department encountered difficulty in attracting extra personnel, especially the experienced draughtsmen necessary to take on two large, concurrent projects. The CEB turned to the private sector and decided to contract the work out to local practitioners. George Griffiths [4] was hired to take over the Elmwood job; Bigg had noted that this architect possessed the experience, the professional ability, the

[1] Memo from Oldfield to Savage, ANZW, E2, box 874, Rec7/8, 30 March, 1942.
[2] CEB Minutes, Building Committee Minutes, 17 March, 1943, p.71.
[3] CEB Minutes, Building Committee Minutes, 20 February, 1946, p.20.
[4] George Davidson Griffiths (1908-73, ARIBA, ANZIA. Griffiths had travelled to the UK and the USA in the 1930s and started private practice in Christchurch in 1946. Architects' File, Visual Resources Unit, Art History and Theory Department, University of Canterbury)

necessary staff, and, significantly, was also 'immediately available.'[5] In January 1948, the CEB formally advised the Assistant Director of Education of this appointment and also that of Gerald W. Bucknell [6] for the Linwood Intermediate job; in both cases the fees were to be 3.5 per cent of the contract figure.[7] The CEB's chief architect, John Bigg, was to provide the initial concept sketch and then to act in a supervisory role, a task that included organising the tender process, approving the drawings and checking the work done by the contractors.

There was still some philosophical ambiguity in the Departmental view about the place of intermediate schooling in the New Zealand system; the Director, Clarence Beeby, had gone on record as supporting the concept, but had never been quite clear as to the optimum length of an intermediate course of studies,[8] a concern shared at the CEB when the issue was debated at a full Board meeting when it was decided to approach the Department for more information about the relative virtues of pupils spending two, three or four years at intermediate school.[9] Another more pragmatic sticking point was the government's reluctance to create a precedent in funding assembly halls as part of the initial contracts for the new intermediates when primary schools had to raise part of the required funds by local effort.[10] In the meantime the accommodation problems of local primary schools, Elmwood, Waimairi, St Albans and Fendalton, were eased by creating temporary facilities in the former Rhodes homestead in Heaton Street for the teaching of Standard 5 and 6 boys, a situation which was to last for seven years.[11]

There was a further delay to commencing the school eventually named after the street in which it was located and its links with the Heaton Rhodes estate, when the Board decided to scale back the concept that called for 19 basic classrooms to 15, although the number of specialist rooms

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[5] Bigg to the CEB Building Committee, ANZC, CAMJ, CH191, box 143 c, 28 January, 1948.
[6] Gerald Wilfred Bucknell (1903-1983, FNZIA. Bucknell had worked in the UK in the 1920s and on his return to New Zealand he worked for Cecil Wood before going into business on his own account. Architects' File, Visual Resources Unit, Art History and Theory Department, University of Canterbury.)
[7] Dowland to Assistant Director, ANZW, ACIG, 877, 7/8, Part 2, 9 August, 1949.
[8] C.E.Beeby, *The Intermediate Schools of New Zealand,* NZCER, Wellington, 1938. Beeby's first recommendation was that the intermediate system should be continued and further developed as he had been impressed with what he had seen, 'but even more upon what it might be.' Ibid., p.209. As Director, Beeby's influence was more obvious in that it was now accepted without question that an intermediate school should consist of more than a string of basic classrooms with the addition of a couple of 'manual' rooms.
[9] CEB Minutes, 23 September, 1949, p.560.
[10] The proposed school was in the Prime Minister's electorate, and Holland wrote to the President of the Heaton Street Intermediate Parent Teacher Association to explain the delay. He also promised that 'a statement … which will be very warmly received' was imminent. Holland to Barltrop, ANZW, ACIG, box 877, 7/8, Part 2, 7 August, 1951. It should be noted that neither of the two existing intermediates, Shirley and Christchurch South, had assembly halls at this stage, 21 and 16 years respectively after the schools were opened.
[11] This point was made by the Chairman of the School Committee speaking at the official opening ceremony for Heaton Intermediate, *Press*, 29 November, 1955.

was, at this stage, not affected. The reason for this change puzzled the Department until it was revealed that the CEB planned another large intermediate to be located between the new school and Shirley.[12] Prior to this, the Department conceded that an assembly hall would be supplied; in fact the standard hall building of 80 x 40 feet was upgraded to increase the space by another 400 square feet on the grounds that Heaton was to be designated a Normal School.[13] However, it was not until 1952 that the CEB was authorised to call tenders for the two schools although Fletcher Construction, John Calder and Williamson Construction were the only firms with the scale and confidence to bid for these large contracts: the Linwood school amounting to 46,000 square feet and Heaton, 48,136 square feet. The Linwood job was awarded to John Calder with a tender of £130,872, while Fletcher Construction was to build Heaton for £128,770.[14]

Bigg's amended concept sketch for the school in Heaton Street had some elements of the configuration of the primary schools he was designing at this stage, specifically Ilam and Wairakei, in that the parallel blocks were linked by covered verandas that also served as access to the toilet facilities. The layout of the school could be likened to four fingers; the index digit containing ten classrooms, the second, another five such rooms and a library, the third including the cookery, dressmaking and arts rooms also featured a last minute change in that the craft room was subdivided into two 'temporary classrooms' although there is no documentation available that explains at whose behest this modification was made. The fourth finger included an activities room and the metalwork and woodwork facilities. All four wings had communication corridors on their south sides and a series of interconnecting covered ways that also joined these rooms to the assembly hall, administration area and janitorial facilities including the boiler room; the only completely detached building was the dental clinic. **(Fig. 84)** There was some similarity to the overall concept then being used in England by G.C Stillman, the Middlesex County Architect, who favoured the use of 24 x 24 feet prefabricated classrooms planned 'as a series of 'fingers' linked by lightweight covered walkways to the school's other buildings, the hall and the administration area.'[15] The Heaton plan,[16] however, called for permanent classrooms rather

[12] Memo from Oldfield to Ellis, ANZW, E2, box 877, 7/8, Part 2, 22 August,1952,
[13] Ibid., Ellis to CEB, 21 November, 1951.
[14] Bigg's letters to the Secretary-Manager of the CEB recommending acceptance of Fletcher Construction's tender for Heaton, copied to the Department, ibid., 25 November, 1952, and the acceptance of Calder's tender for Linwood Intermediate, ANZW, ACIG, box 874, 7/8, 6 November, 1952.
[15] Nicholas Bullock, *Building the Post-War World*, Routledge, London, 2002, p.186.
[16] The folder titled Heaton Street Intermediate Normal School is at MB 2161, item 33627. It contains a sequence of Bigg's concept sketches and all the drawings completed by the Griffiths' practice that were used in the initial contract. Subsequent alteration and refurbishments were the work of the CEB and the relevant drawings are held in Archives New Zealand.

than temporary structures, and they were to be of the standard New Zealand Primary School code size of 24 x 26 feet. Bigg's original sketch for Linwood was based on a similar concept but the relatively small and irregularly shaped site demanded one major modification as noted by Bucknell in his letter to the CEB requesting permission to amend the plan by creating a two storey classroom block,[17] effectively removing one 'finger' from the design. However the two new intermediates did look similar with their parallel configurations and weather board cladding. Both schools had a library and six specialist rooms, and a large 1000 square foot space that was designated 'nature study/science' at Linwood while at Heaton a similarly sized room was labelled 'activities'; both rooms included two sinks and were obviously intended as spaces for scientific experiments, although the CEB, in a return to the Department in 1958, admitted that the Heaton room 'is used at present for ordinary classes'.[18] The Linwood contract was not finished until late 1957 and the school was finally opened in February 1958 with a roll of 700 which necessitated an immediate request for a prefabricated room to cater for the unanticipated demand.[19]

If the CEB input into Heaton and Linwood had been limited, its influence over the next intermediate, Kirkwood Avenue, in Riccarton, was even smaller. The Auckland Education Board's design of Belmont Intermediate at Takapuna had impressed the Department to the extent that it was to be used as a model for intermediates throughout the country in the later 1950s and into the 1960s.[20] Some changes were necessary for local site conditions and to cater for these the Christchurch firm of Hall and McKenzie was contracted to produce the relevant drawings. The terms of the understanding were outlined in a memo from the local Ministry of Works' District Commissioner to the Director of Education in February 1957.[21] The CEB's role was limited to duplicating the architect's drawings, calling for tenders, and the supervision of a project in which it had no influence over design. The key difference in the configuration of the various rooms and facilities was that the finger school concept used at Heaton and Linwood, linked with corridors and covered ways, had been abandoned in favour of detached blocks; Belmont itself did feature some covered ways but the Department had excised these at an early stage of the planning process for later schools.[22] At Kirkwood, eleven classrooms were presented in two

[17] Bucknell to Secretary Manager, ANZW, E2, box 874, Rec.7/8, 31 January, 1949.
[18] Secretary Manager to Director, re Accommodation at Heaton, ibid., 23 October, 1958.
[19] Secretary Manager of the CEB to the Director of Education, ibid., 4 February, 1958.
[20] The drawings used for Kirkwood acknowledged their origin from the AEB; the architect was Cyril Gregory. The set of drawings used for Kirkwood can be found in ANZC, CAMQ, CH564, 3252, box 387.
[21] Clark to Director of Education, ANZC, CAMQ, CH690, 2261, box 16, 18 February, 1957.
[22] Ibid., Assistant Director to CEB, 29 November, 1956.

linear wings of four units, although a smaller block of only three teaching spaces was connected to the main complex by the addition of a library divided from the general classrooms by a concrete block fire wall. The specialist rooms were identical in function to those provided for Heaton and Linwood although this time they were packaged in detached double-room blocks. At this stage there was still no intermediate building code but the 1956 Primary Schools' code was applied leading to an increase in the size of ordinary classrooms to 768 square feet, although corridors had been removed and the further space-saving device of accessing cloakrooms and toilets directly from the teaching spaces had been adopted. The mono-pitched roofs of the classroom wings, and the low profile of the flat-roofed administration block, accentuated the north facing fenestration and contributed to a modernist air. (**Fig. 85)** The introduction of brick veneer up to the height of the classroom window sills was also used to articulate the external access to these spaces while creating a pleasing contrast to the use of vertical timber boarding used extensively in the administration area and assembly hall.

The concurrent CEB design for primary schools under the cost-saving White Lines regime had tended towards a dreary and uniform utilitarianism but at Kirkwood a gesture had been made towards engendering national and regional awareness in pupils, staff and the wider community. The focal point of the school was undoubtedly the entrance that provided access to the library, assembly hall and the administration offices. Those using this formal entry, walked through a courtyard, 20 feet wide, paved with concrete blocks, but highlighted with a series of 6 x 2 feet rectangles that had been left unpaved. In this case these gaps had been filled in with smooth river stones, perhaps a reference from the local architects to the basic geomorphology of the Canterbury Plains. The foyer floor featured a parquet surface of native timbers[23] and the walls of this area and of the hall were covered with one inch thick vertical rimu boards up to a dado height of 9 feet. Access to the school office and administration block could be gained by walking across the foyer and under a giant laminated beam with cross-section dimensions of 10 inches x 2 feet thus offering a visual guarantee of the structural integrity of the vernacular materials used in this area. To the right, the assembly hall could be entered through a 25 feet gap deliberately left to enhance the sense of space and light of this complex. The latter device was not a practical success as it led to the problem of pupils working in the hall, which was used as a

[23] An unforeseen consequence of using this surface was noted by the Board architect in alerting the Building Committee that these floors were being damaged by 'women teachers wearing stiletto heeled shoes.' CEB Minutes, Building Committee Minutes, 19 July, 1961, p.560. However, the problem was also widespread in other schools with traditional tongue and groove timber flooring; the Board decided to circularise all headteachers in the District asking them to seek the cooperation of women teachers in refraining from wearing these fashion items. CEB Minutes, 27 July, 1961, p.626

gymnasium as well as an auditorium, being too easily distracted by foot traffic through the foyer. The first solution suggested, a curtain, was rejected, until finally the gap was effectively partitioned.[24] The Belmont model did not provide dressing rooms for students changing for physical education; there was an expectation that this should be carried out in the toilets, cloakrooms or even classrooms, none of these options being ideal for eleven and twelve year old children. The hall had no fixed stage, instead a system of twelve mobile units could be moved to create a temporary platform when required that could then be easily dismantled and stacked to allow more space when the hall was in use as a gymnasium.

The Kirkwood model of using a private architect to create the drawings for a local school based on an Auckland prototype apparently worked well enough for the same approach to be used again. Fendalton Intermediate, later named after Viscount Cobham, Governor-General 1957-62, was the next to be built, in this case by Paynter and Hamilton. The new intermediate, accessed from Ilam Road, was to draw its pupils from Fendalton, Burnside, Wairakei and Aorangi primaries. As the size of the school was comparable to Kirkwood, 12 ordinary classrooms instead of 11, but with the same number of specialist rooms in detached double units, the drawings were mostly direct copies of those used at the latter school. [25] An identical arrangement integrating the foyer and the assembly hall was featured, although in this case the unpaved rectangles in the courtyard offered a chance for an individualised motif; a photograph taken on 1 April, 1963, shows foundation pupils planting these spaces with what appear to be native trees.[26]

Two more very similar schools were built in the 1960s: one to service the north east of the city, and another to cater for the rapidly growing housing area in Aranui to the east. The school in Veitch Road (now Veitches Road), designed to draw pupils from Northcote, Bishopdale and Papanui Primary schools, was eventually named Casebrook, thus maintaining a reference to the previous land use as an orcharding area owned by the Case family. The new school was similar to those at Kirkwood and Cobham and some of the drawings still betrayed their ultimate origins in their use of plans labelled 'Belmont Intermediate, Auckland Education Board.' However on this occasion the use of a local private architect was not judged to be necessary and any tweaking

[24] Reminiscences of A.D Coates, the first Headmaster of the school, *Kirkwood Intermediate School-25th Jubilee 1960-85,* Kirkwood Intermediate School*,* Christchurch, 1985, p.3.
[25] The drawings for this school are held at ANZC, CAMQ CH564, 3253, box 359.
[26] Cobham Intermediate School, *Cobham Intermediate School: 25th Jubilee,* Cobham Intermediate School, Christchurch, 1988, n.pag.

of the design was handled by the CEB's own staff.[27] The usual configuration for this type of school was employed: three classroom blocks, each of four units, three blocks of specialist rooms, two per block, and a standalone dental clinic. (**Fig. 86)** The standard arrangement of the library, assembly hall and administration facilities concentrated in one complex was also displayed although the previously learned lessons were applied in that a system of doors and partitioning between the hall and the foyer was allowed for at the outset of the planning process rather than waiting for the inevitable complaints about the unworkability of the original design. Another change was necessitated by the increasing awareness of safety issues. When the drawings were checked by the Ministry of Works, they were found to be deficient in terms of new fire regulations which required a gap of at least 20 feet between buildings, thus prompting re-configuration of the non-complying blocks, a task that was not straightforward on a site which, at eight and a half acres, was already smaller than the Departmental recommendation of 10 acres for intermediates. The MOW also objected to the use of Pinex acoustic tiles,[28] on the grounds that they did not provide suitable resistance to the spread of fire; fibrous plaster was seen to be more appropriate in this context.[29] The school, built by JJ Construction, featured brick veneer and weather board cladding as used in both Kirkwood and Cobham, and was ready for occupation at the start of the school year in February 1966, twenty-one months after the tender was let.

The same model was also used at Aranui for the school tentatively designated Breezes Road, but later called Chisnallwood, the school committee opting to compound the names of two former owners whose land had been purchased to create the site for the new intermediate. The need for this school had been foreseen as early as 1961 but it was not until November 1963 that the CEB applied for funding with the expectation that the new intermediate would be ready for pupils by 1966. It was pointed out that if this action were not taken, the proposed contributory schools, Aranui, Avondale, Burwood, and Wainoni, would require another 25 prefabs.[30] However, the application for a grant became bogged down while being scrutinised by the Cabinet Works Committee and the Treasury and it took a blunt memo from an exasperated Minister of Education when he warned his political colleagues that continued failure to act would have

[27] The relevant drawings for Casebrook Intermediate are at ANZC, CAMQ, 3253, CH564, box 439.
[28] These tiles were manufactured from low-density wood fibre and at this stage were assumed to be flammable. However the MOW appears to have relaxed its proscription of this product as it was used freely in the CEBUS rooms from 1969.
[29] Assistant Director to Minister, ANZW, ABEP, W4262, box 98, Rec No, 7/8, Part 1, 20 February, 1964.
[30] Application for Funding for Breezes Road Intermediate, ANZC, CAAA, CH45, 2261, box 13, 11 November, 1963.

'explosive effects, not only in the Canterbury district but in other areas'.[31] The school was the fourth in the Belmont pattern, featuring detached, single storey buildings with the three classroom blocks of four rooms, three specialist blocks of two rooms each and the standard complex of the administration block, library and assembly hall.[32] JJ Construction again won the tender by a large enough margin to suggest that this firm was an efficient and well managed business, flexible enough to handle two major projects simultaneously as there was an overlap with the Casebrook job.[33] The only cost overrun was a function of carelessness on the part of John Bigg, compounded by his lack of liaison with the contractor and the consulting engineer, Maindonald and Associates, as to the type of heating system appropriate for a school sited on land with a high water table.[34] However the school was completed, according to the readjusted schedule, to a point where it had the capacity to cater for Form 1 students from February 4, 1967.[35]

In a decade, four intermediate schools had been built to a plan which had been used throughout New Zealand. The Auckland Education Board design, initially refined by private local architects, had resulted in Bigg's Building Department feeling confident enough to take on the last two projects in the sequence without outside help. The design revolved around the library/assembly/ administration complex but the heart of the school was disconnected from the other constituent parts of the institution. The lack of covered ways and/or corridors was clearly a money-saving move and although Board records of the period do not indicate any overt criticism of the plan, the dispersed and consequently isolated blocks must have made for unpleasant conditions in Christchurch's prevailing cold easterly winds and would have done little to encourage the development of a corporate spirit among staff and pupils.

[31] Kinsella to Cabinet Works Committee, ibid.,15 October, 1964.
[32] Drawings for Chisnallwood are held at ANZC, CAMQ, CH564, 3253, box 451.
[33] JJ's price of £123,863 was significantly lower than the others: Paynter and Hamilton, £132,482, Fletcher Construction, £134,173 and J & W Jamieson, £154, 534. CEB to Southern Regional Office, ANZC, CAAA, CH45, 2261, box 13, 17 May, 1965.
[34] The CEB had to apply for another $11,985 to complete payments for the contract, explaining that 'it was not realised at the time that a ducting system was not included in either the hot water heating contract or the principal contractor's building contract.' Secretary Manager to Regional Superintendent, ibid., 4 November, 1967. (New Zealand changed from imperial to decimal currency on July 10, 1967, at a conversion rate of £1 to $2.)
[35] *Press,* 26 January, 1967.

By the mid-1960s, the Department of Education's School Development Group[36] was considering a more centralised concept for intermediates, that of buildings grouped around a quadrangle, and there was some correspondence between this unit and the CEB's Building Department on the subject of this new model. In 1965, Murray Colechin, the CEB's Assistant Chief Architect, and the Development Group, exchanged sketches for the Board's next intermediate school [37] that was planned to relieve pressure on the Hoon Hay and Spreydon primary schools while also building up the capacity to cater for the rapidly developing housing area of the Rowley Block. It was decided to construct the new school, eventually called Manning Intermediate after Sir George Manning, Mayor of Christchurch, 1958-68, on the basis of the quadrangular design that along with its other advantages, maximised the available space for playing fields. **(Fig. 87)**

The initial contract, let to Paynter and Hamilton in April 1967, provided a two storey block of 12 classrooms, a library, two manual rooms, cookery and woodwork, and an assembly hall/administration complex.[38] Pressure on space for the contributory schools was so acute that it was decided that when the new intermediate school opened at the beginning of February 1969, that both Forms 1 and 2 were to be enrolled and that the short-term lack of specialist rooms would be mitigated by using two of the ordinary classrooms as art and science rooms for the first three years of the school's life. The second stage, built by JJ Construction in 1971-72, brought the complement of specialist rooms up to code with the provision of clothing, metalwork, arts and crafts and science rooms, thus completing the quadrangle.[39]

The design had several features which would characterise this new generation of intermediate schools; for example, more attention was paid to the incorporation of systems to enable the entry of natural light into all buildings**.** Each of the three stair wells in the two-storey block accessed a landing that by virtue of a glazed 'bridge' indented into the roof line, created an experience for pupils of moving thorough a light-filled conservatory to enter the upper level classrooms. **(Fig.88)** Similarly a glazed lantern was placed over the foyer between the hall and the administration block, and the specialist rooms featured southwest-facing scoops to allow the

[36] This group met monthly to consider plans submitted by boards, especially those that involved some variations to the relevant building codes. The group, based in Wellington, consisted of the Departmental Architect and members of his team as well as administrative personnel.
[37] Colechin's sketch was dated July 1965, that of the School Development Group was dated 8 August, 1965. ANZW, ABEP, W4262, 7749, box 104.
[38] The drawings for the first stage are at ANZC, CAMQ, CH564, 3253, box 211.
[39] The drawings for Stage 2 are at ANZC, CAMQ, CH564, 3253, box 213.

capture of light from the afternoon sun. A major shortcoming of the Belmont design was corrected; changing rooms were provided behind the hall that now featured a built-in stage that allowed a 28 foot opening into the auditorium, while a lobby from the western end of the platform allowed direct access to the changing rooms that utilised fixed skylights.[40]

The overall effect showed some similarities to the industrial modernism of schools built in the United Kingdom in the late 1940s and 1950s. A new dynamic, exemplified by the use of different materials, was especially notable in the change in cladding from the brick veneer and timber weatherboard of the Belmont model to a combination of concrete block, hardboard, asbestos and cement board panelling and aluminium siding. These materials were also used in the Board's next intermediate school in Amyes Road, Hornby, named Branston after a former owner of the land on which the new school was built.[41] The CEB Assistant Chief Architects, Murray Colechin and David Batchelor, provided a close copy of the design used at Manning for the school that was to draw its intake from Hornby, Hornby South, Sockburn and Gilberthorpe primary schools.[42] The continuity of the process extended to the Board using the same contractor, JJ Construction, and a similar phasing of the plan to that used at Manning; the first stage consisting of the administrative wing and assembly hall, the two-storey classroom block, and the basic 'manual' facilities, the cookery and woodwork rooms, being completed in time to allow the first enrolments of Form 1 and 2 children in February 1971. The initial roll of 450, exceeded board estimates by 25, and necessitated the application for a temporary unit room before construction of the second stage could be started.[43]

A significant innovation was the role of the new school in helping to solve the long-standing problem of the lack of a community centre for the Hornby area. The Department was immediately receptive to the Paparua County Council's request that the school assembly hall should be a shared resource and, in May 1969, it was announced that the local Council would provide $14,000 to provide the extra facilities required.[44] David Batchelor amended the plan to

[40] Changing rooms were to be provided under the new code of 1971 and the Department's Schools' Development Group showed flexibility in the case of Manning Intermediate in allowing the incorporation of this feature despite the building of Stage 1 of this school being completed two years before the code was officially promulgated.
[41] Interview, Ron Armstrong. Ronald F. Armstrong was the first principal of the school when it opened in 1971. He recalled that the name was adopted by the school committee at his suggestion as he wanted to avoid the inevitable confusion with the existing schools of Hornby and Hornby South primary schools, and moreover, it was also known at this stage that the Department was considering building a secondary school in Hornby that would probably also be named after the area.
[42] The drawings for Branston are at ANZC, CAMQ, 3253, CH564, box 442, Folders 1and 2.
[43] ANZC, CAAA, CH45, 2261, 7749, box 104, 21 February, 1971.
[44] *Press,* 23 May, 1969.

add a public foyer, an enlarged kitchen, a supper room, and extra car parking and also supervised the design of a separate heating system so that the hall could be operated independently of the rest of the school.[45]

Branston's first principal was immensely pleased with the quality of the construction that he saw as a state of the art complex in contrast to the sixteen-year old Heaton Intermediate which he thought poorly planned and rather dowdy.[46] The CEB's Building Department obviously shared his pride in its new flagship school and thought it worthwhile contracting a professional photographer who produced a series of sparkling images which still convey something of the excitement of this exemplar of educational architectural modernity. **(Figs. 89&90)** Yet there were problems with this model; Nedra Johnson, the Board member representing Manning Intermediate, alerted her colleagues to 'the need for improvement in acoustics'.[47] She was referring particularly to the two-storey classroom blocks; the ground level was provided with a concrete slab floor but the second storey featured a suspended timber tongue and groove system overlaid with vinyl that gave little protection to those below from the normal classroom noise overhead which tended to reverberate, thus magnifying the aural discomfort to teachers and pupils.[48]

The CEB now turned its attention southwards; intermediates had been scheduled for Timaru and Ashburton, and in both cases frustrating delays tried the patience of the local communities and the Board alike. The problem at Ashburton was settling on a suitable site although eventually the buildings and grounds used by the senior division of Ashburton College in Walnut Avenue became available as the secondary school was consolidated in the northwestern end of the same street. The Chief Architect, Fred McCook, advised the Board's Building Committee that the CEB's intermediate prototype, developed by John Arthur, would be used for this school,[49] although it should be noted that this architect was also working on the design of Greymouth Intermediate at this time.[50] At Ashburton, the decision to retain a two-storey classroom block, built in 1958, as well as an older science room and the administration building, determined that the configuration of the complex would lack coherence, although the pragmatism of this policy

[45] ANZC, CAMQ, 3253,CH564, box 442, Folder 1.
[46] Interview, Ron Armstrong.
[47] CEB Minutes, Building Committee Minutes (Confidential Section), 17 November, 1971, p.851.
[48] For example, in 1974, a senior teacher at Branston sought a transfer to another school on the grounds that 'the noise factor in the two storeyed building in which he taught was affecting his health.' CEB Minutes, Professional Committee (Confidential Section), 22 August, 1974, p. 442.
[49] Ibid., 14 December, 1971, p. 927.
[50] The design of this school will be discussed later in this thesis, see Chapter 10, p.198.

did much to reduce the overall cost of the contract that was let to Williamson Construction Ltd for $254,839 while the separate heating contract went to J. Sturrock for $33,600.[51] The slow process of gaining approval for the project, first mooted in 1964,[52] had one positive effect in that the school, opened in 1974, based on drawings completed in 1972, was able to benefit from the advantages of the1971 code.[53] The old staffroom was refurbished and gained extra storage space and office accommodation, while the existing classrooms were augmented with new resource areas.

The elements of Arthur's design[54] revealed that the new part of the school revolved around a 1920 square feet rectangular courtyard that was paved, attractively landscaped and encompassed by a covered way. To the south, a cluster of four classrooms, each 625 square feet and provided with individual access to a 450 square feet resource room, formed an integrated teaching space that was framed by covered ways to the north and south, and corridors to the east and west, that also housed lockers for pupils. Beyond the corridors two specialist rooms to the east, woodwork and metalwork, were balanced by clothing and homecraft facilities to the west. **(Fig. 91)** The most significant structural development was the use of CEBUS technology to build the new rooms, but the technique had been adapted for use in what was assumed to be a permanent structure rather than a solution to a temporary accommodation problem. Although the distance between the portal frames was the standard 9 feet 8 inches for the Mark 3 CEBUS model, the standard 24 feet room width, was increased to 26 feet to give extra space for the specialist equipment required to fulfil the needs for trades and craft-oriented subjects. Natural light was admitted by the use of scoops while fixed skylights were utilised over the resource room and corridors. **(Fig. 92)**

Arthur's chance to design a completely new school came in 1973 after the Department's approval of the purchase of 10 acres in Breens Road for the building of a new intermediate in the burgeoning northwest of Christchurch.[55] In June, 1972, it was announced that the primary

[51] CEB to Department, CAMJ, CH191, box 23, 11 November, 1972.
[52] Editorial, *Timaru Herald,* 25 October, 1971.
[53] The Intermediate Code followed the improvements in the 1970 Primary Code; an allocated floor space was determined rather than a specific number of rooms. The code also provided more space for staff and pupils; the size of libraries, administration offices and storage areas were increased while extra gender-specific medical inspection rooms reflected the differing needs of Form 1 and 2 pupils in comparison to younger children. Lockers were also to be provided for all students. The Cabinet agreed to the code at the end of 1970 although it was not formally published until 1971. ANZW, ABEP, 7749, W4262, box 397.
[54] The drawings for Ashburton Intermediate are at ANZC, CAMQ, 3253, box 375, RS/344.
[55] CEB Minutes, Building Committee Minutes, 15 March, 1972, p.62.

schools of Isleworth, Cotswold, Harewood and Roydvale would contribute to the new Isleworth Intermediate.[56] Arthur's response was a tight cruciform alignment, the east- west axis centred on the open courtyard flanked by the library to the east and the gymnasium/auditorium to the west.[57] Two similarly configured classroom complexes featuring variably sized rooms ran north and south of the courtyard that was imaginatively landscaped to act as an outside room that fulfilled the role of a recreational space sheltered from the prevailing winds. **(Figs.93&94)** Each of the groups of classrooms was enclosed by corridors that also provided lockers and undercover access to the specialist rooms. The consequent large roofed areas of these blocks created the potential for a lack of natural light but Arthur had mitigated the danger by the extensive use of clerestories, and roof lights, the latter consisting of both fixed and hinged acrylic skydomes. Breens was a large school with seventeen basic teaching spaces as well as the usual complement of specialist rooms, but the designer's tight control of spaces connected by covered ways created an intimate but not claustrophobic atmosphere.

Arthur replicated his innovation at Ashburton where he had abandoned the traditionally shaped rectangular hall[58] for a 60 foot square structure that included a fixed raised stage 15 feet deep and an opening into the auditorium of 30 feet. This complex featured his distinctive motif; a roof line characterised by an abrupt change in pitch from a relatively gentle 15 degrees to a more extreme 36 degrees as the roof structure gathered to a pronounced point. **(Fig. 95)** Again, asbestos panelling was the veneer of choice for all external walls although the continued use of the CEBUS technology was of increasing concern to the Department; it was considered to be a method of construction 'more costly than necessary… the use and cost of 3/8 inch plywood and flamestop building paper under exterior linings seems excessive'.[59] To make matters worse, only one contractor submitted a price for the job and Duffield and Barron's tender of $665,445 was rejected by the Board; a re-tendering process failed to arouse any more interest from local contractors but did result in a lower price from Owen Duffield, yet the new school finally cost the tax payer more than $700,000 after the heating contract was let to a sole tenderer and various other cost overruns were approved.[60]

[56] CEB Minutes, Building Committee Minutes, 21 June, 1972, p.155. Eventually common sense prevailed and the school was named after its location, i.e. Breens Road.
[57] The drawings for Breens Intermediate are at ANZC, CH564, 3253, box 399, RS/371, Folder 2.
[58] The usual size approved for primary schools was the Departmental plan that measured 80 x 40 feet and although intermediate halls were usually larger, the rectangular shape had been standard.
[59] Teleprint, Worgan to Sanders, ANZW, ABEP, 7749, W4262, box 97, Part 1, 12 December, 1973.
[60] CEB to Department, ibid., 15 March, 1974.

Prior to the building of Breens Intermediate, the location of a school to serve the needs of the Form 1 and 2 pupils of South Timaru, eventually named Watlington after the area in which it was situated, was finally chosen. The site off Otipua Road posed a problem to CEB architects accustomed to building on flat land, in that while presenting panoramic views of the surrounding countryside, it required the construction of the school on a small plateau that was not large enough to cater for the entire complex. The result was an interruption in the development of Arthur's sequence of single level schools as, in response to this challenge, Edward (Ted) Tesch,[61] an Australian architect working for the CEB, designed a structure that was certainly unique to Canterbury state schools of Board design. It was decided that the most cost-effective method of delivering classrooms on such a restricted site was to build a three-storey block with the ground floor on the lower part of the site while the second storey reached the level of the rest of the school.[62] The result was a fair-faced reinforced concrete building with a flat roof, so uncompromisingly modernist that it brought a touch of Le Corbusier's Unité d'Habitation to South Canterbury, albeit in a scaled down form. **(Figs. 96&97)** The cliff of concrete and glass contained 17 rooms of varying sizes, 15 of them basic classrooms as well as two rooms specifically for art and science. The block was accessed by three sets of stairs and connected to the rest of the school by two enclosed air bridges anchored by concrete piers. The undercroft acted as the ground floor suite of classrooms with the complementary support of a row of concrete piloti. The structure is so different from anything else conceived and executed by the CEB that that it can only be regarded as an outlier in terms of the evolution of the design of intermediate schools in the Canterbury district,[63] although the buildings on the upper part of the split-level site were described as 'timber frame, gang nail truss, with asbestos board cladding,'[64] i.e. the CEBUS type structure as used at Ashburton. The builder, C. Lund and Son, was new to

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[61] Edward Shipstone Tesch (1934-2011, was born and trained in Brisbane but it is not known how long he worked for the CEB; there is no salary card in his name in the Board's records. By 1980 he had returned to Australia and lived and practised in Hunter, New South Wales. Death Notice, *Newcastle Herald,* 5 August, 2011. Reyerson index, reyersonindex.org/)

[62] Although there are appropriately labelled files under the CAMQ agency for this school, none includes a full set of drawings for the three-storey block that is represented only by a fragment of a heating plan; there are no drawings giving dimensions or elevations. While the fate of these documents is unknown, it was obviously realised that this was a significant building, as a collection of photos was accumulated during construction. See ANZC, CAMQ, 12457, CH437, box 1/100. Unfortunately, many of these were taken with a Polaroid instant camera and a number of these images have degraded to the point whereby they are not clear enough to reproduce. The general description of the building has been sourced from the documents included in the Buildings and Sites file, ANZC, CAMQ, CH690, 2261, box 34, 7/8, Part 2. This writer also visited the site and obtained some photographic evidence of the intermediate school that had been closed as part of a school review in the Timaru area in 2004-5. See Closure Timeline, *Timaru Herald,* 20 October, 2008.

[63] The three-level concrete block, dubbed 'Colditz Castle' by the Building Department, was soon the subject of complaints as it leaked badly. Interview, Keith Beardsley.

[64] MOW Report, Fire Protection at Watlington, ANZC, CAMQ, CH690, 2261, box 34, 7/8, Part 2, 6 November, 1978.

Board work, but was a well-established firm: the successful tender price was $420,394 and, with the heating contract and other sundries, the total cost of the project was $551,347.[65] When formally opened by the Minister of Education on April 30, 1974, the new intermediate initially catered for Timaru South, Timaru West, Timaru Main and Highfield primaries.

When reviewing the development of Canterbury intermediate schools after the Second World War, it must be accepted that there were technical issues with some of the structures provided by the board; the problem of poor acoustics in two-storey buildings was difficult to resolve and perhaps hastened the Board's decision to change the model to that used at Ashburton and Breens Road. The covered way, conceptually so impressive, could be disastrous in practical terms. At Breens, the wooden-framed metal-covered structure attracted acute condensation in cold conditions and resulted in the concrete paths becoming rivers rather than remaining dry, and turning into sheets of ice in frosty weather. The school committee battled without reward for five years until the local community paper mounted a crusade against alleged Board inactivity [66] and the local MP, Mike Moore, asked a parliamentary question to push the Minister into investigating the issue.[67] Background notes supplied to the Minister, Mervyn Wellington, revealed similar problems at Ashburton Intermediate, although its committee's muted objections had not been persistent enough to prompt any action. The fault was eventually traced to the lack of insulation in the roof of the structure and the solution adopted was to spray the underside of the metal with a plastic compound.[68]

A major headache for the Board was the consequence of the announcement of the Intermediate Code in 1971; the Minister, Brian Talboys, claimed that it would 'enable architects to provide a suitable education in keeping with up-to-date needs,'[69] but his government's failure to increase funding for upgrading the schools built before 1971, of which there were ten in the Canterbury district, created a headache for the CEB, as these schools scrambled for grants to effect the changes. The extent of the new work required at Chisnallwood in 1974 is a good example of the nature of this type of project. **(Fig 98)** However, trying to schedule the work on an equitable basis proved difficult and the CEB's muddled processes attracted criticism. In 1977, the Manning committee, tired of waiting for its turn, lobbied the local MP, John Kirk, who asked for

[65] ANZW, ABEP, 7749, W4262, box 113, 7/8, Part 1, 15 December, 1971.
[66] ANZW, ABEP, 7749, W4262, box 97, 7/8 Part 1. Article filed ex *Papanui Herald,* 29 July,1981.
[67] Details of Moore's question, ibid., 31 July, 1981.
[68] Ibid., undated, unsigned document titled Notes to the Minister.
[69] Release to the Press Gallery, ANZW, ABEP, 7749, W4262, box 97, 9 November, 1970. See p.179, footnote 53 earlier in this chapter for brief details of the changes.

a ministerial inquiry into the problem; the Department's advice to the Minister was to explain that the CEB had, by then, adopted a policy of drawing up a five-year plan and that older schools' needs should be met first and that at this stage, the priority cases of Heaton, ($360,000), Shirley, ($300,000) and Linwood, ($280,000) had to take precedence over a relatively new school such as Manning.[70] The Building Department was also taken to task about its lack of consultation when planning the remodelling projects. The local Intermediate Principals' Group noted rather tartly that they and their staff 'could offer practical ideas based on their teaching experience.'[71]

By the mid-1970s, there seemed little to hinder the Board's determination to complete its programme of making intermediate education available to as much of the greater Christchurch area as possible. It boasted a design that was ideologically and structurally aligned with the thinking of the Department and although the relatively expensive nature of CEBUS technology was a disadvantage from the Department's perspective, the application of the White Lines regime had been extended to new intermediates in 1971, hence the cost of these schools was now much easier to control. In 1972, the Board had adopted a five year plan that required the construction of eight more such schools; the list included Breens Road, Avonhead, Opawa, North New Brighton, Kaiapoi, Rangiora and Lincoln, as well as a second intermediate in Timaru. At the time this target was set, six of the sites were already held and negotiations were in train for suitable land at Rangiora and Lincoln.[72] It is true that the Labour Minister of Education, Phil Amos, had caused some anxiety as his commitment to the intermediate concept seemed somewhat irresolute,[73] however, his successor, Les Gandar, used his speech, while opening Breens Intermediate in 1976, to make a long and impassioned defence of the place of intermediate schools in the New Zealand education system.[74] The fact remains, however, that Breens, the first school of the scheduled eight, was the only one to be built. A study of why a policy that the Board shared with the Department was never completely carried out requires an analysis which is beyond the scope of this thesis although a condensed account has some value

[70] Intra-Departmental Memo, Southern Region to Head Office, ANZW, ABEP, W4262, 7749, box 104, 22 November, 1977.
[71] Secretary of IPG to CEB, ANZC, CASY, CH229, Box 22, 7 March, 1975.
[72] CEB Minutes, Building Committee Minutes, 13 July, 1972, p.444.
[73] For example, in his address to the Education Boards' Association in 1974, he had argued that if a majority of parents were against the establishment of an intermediate school in their area, the Board and Department should respect this wish. Report of the EBA Annual Conference of September, 1974, CEB Minutes, Building Committee Minutes (Confidential Section), 17 October, 1974, p.324.
[74] Les Gandar delivered an eight page address on this occasion. A copy is included in ANZW, ABEP, 7749, box 97, 7/8 Part 1, dated 26 June, 1976.

in showing how building programmes were affected by a range of factors, some beyond the Board's control.

A significant number of parents were never convinced about the requirement to cut short their children's primary education in favour of a potentially unsettling change of a relatively short stay at an institution which was only a 'bus stop'[75] on the way to yet another upheaval, that of starting secondary school two years later. The compulsion of the move was also resented; the Minister could decapitate local primary schools by 'naming' them as contributors to a specific intermediate and this approach had been taken despite school committee and community objections.[76] However, by the mid-1970s, the Board was wearying of a series of bruising consultation processes and was becoming less likely to override local concerns by simply recommending that the Minster force recalcitrant schools into the intermediate fold; such a directive method was becoming less acceptable in a decade of increasing openness and a willingness of disaffected groups to organise to confront those in authority.[77] There was however a more fundamental if less dramatic reason for the CEB's failure to carry through its policy.

The Board's policy on intermediate schools was clearly based on the assumption that the Christchurch population would continue to grow but in the 1960s and early 1970s, Kirkwood, Heaton and Cobham were operating on roll levels at less than the capacity for which they were built. These schools served established and mature suburbs without the preponderance of young families in newly developed areas such as Avonhead, a location that was high on the CEB's schedule for a new intermediate. The designated site in Withells Road became the subject of a zoning argument between the Board and the Waimairi County Council [78] and the only other land available in the suburb was in Maidstone Road. By February 1973, the Building Committee

[75] This term was used in the CEB General Manager's review of EBA discussion on the development of intermediates, CEB Minutes, Building Department Minutes (Confidential Section), 20 August, 1980, p.361.
[76] See for example the disputes between the Wharenui Committee and the Board over the direction that Form 1 and 2 pupils should attend the new intermediate at Kirkwood, and the Paparoa Street committee's fight to avoid the re-classification of their school into the Heaton zone. There is an extensive file of documents about the Wharenui case covering the period 1956-62 in ANZC, CAMQ, CH690, 2261, box 16. The Paparoa Street School Committee Minutes, 1962, present an account of this school's opposition to impending decapitation: this record is in the Paparoa Street School archives.
[77] The case of Mairehau Primary School was something of a landmark. Eventually, after strenuous protests by the committee and parents, the Board effectively backed down in its attempt to bolster the falling roll of Heaton, by agreeing that the issue would be not be raised again by the Board until the Mairehau committee itself wished to re-open the matter. CEB Minutes, Building Committee Minutes, 20 October, 1976, p.204.
[78] The Waimairi County Council formally notified the CEB that its application to build a school on this land was declined as the Council wished to extend the urban fence. CEB Minutes, Building Committee Minutes, 15 July, 1970, p.287.

realised that a new intermediate in this area could cannibalise the rolls at Kirkwood and Cobham and marginalise these schools even further.[79] A more pervasive problem was the decline in the national birth rate, a phenomenon which can be gauged, at least retrospectively, from data published annually by the Department of Statistics, a key indicator being the table of the total births in New Zealand expressed as a rate per 1000 of the mean population. In 1956, this rate was 26.5, by 1964, the figure was 24.06, and from 1966-72, the rate reached a plateau averaging 22.3 with little inter-year variance, perhaps engendering a feeling that this was a normal growth rate that could be assumed when planning future building programmes. However, in 1973, the figure dipped to 20.4, and the slide continued in 1974 when it fell to 19.6, i.e. an effective fall in the birth-rate of 18.5 per cent over the decade from 1964.[80] Although these were national figures, it is likely that they represented a reasonably accurate indication of the situation in the Canterbury district; it does much to explain why the CEB built no new primary schools in Christchurch after 1977 and why Breens was the last intermediate to be constructed in the Canterbury.

Despite the collapse of the Board's policy to build more intermediates, the twenty-five year period from 1950 had seen the construction of twelve large schools in the Canterbury district and cannot be ignored by the architectural historian. The two schools designed by John Bigg before the war had some similarities to the two he influenced through his concept sketches in the early 1950s; they showed that his predilection for the rectilinear arrangement of buildings remained constant. These four schools with their parallel timber wings could be seen as ideologically indigenous to Canterbury but were not sustainable in the post-war environment with the government's constant emphasis on financial restraint in the public sector; certainly the sprawling 'finger' plan used at Heaton and Linwood with its interminable corridors and covered ways was seen as unaffordable because of the extra construction costs and on-going cleaning and maintenance expenses. The Departmental decision to use an Auckland model in the decade from the mid-1950s was an example of the growing influence of the central government on CEB decision making and parallels the prescriptive approach taken with the Dominion Basic Plan and the 1956 code in the construction of primary schools over the same period.

This trend of Departmental influence appears to have been partially relaxed in the mid-1960s with the development of the design of the quadrangular concept used at Manning and Branston

[79] CEB Minutes, Building Committee Minutes (Confidential Section), 21 February, 1973, p.28.
[80] *NZOYB,* 1975, p.89, and 1980, p.87.

as the planning of these schools did seem to be the result of genuine collaboration between the Schools' Development Group and the CEB's Assistant Chief Architect, Murray Colechin. Another element was added to the mix with the contribution of CEB architects who had overseas experience and/or training; practitioners such as David Batchelor, Ted Tesch, and John Arthur carried their influence through to the last phase of development in the early 1970s when the Board's CEBUS technology was used to further refine the design of Canterbury intermediate schools, a model which could be said to have reached its apotheosis at Breens Road. In some ways school building in Canterbury was becoming homogenised with a similar building system concurrently being used by the Board in the construction of Hornby High School. The fact that the former school was assumed to be permanent while the buildings at the latter were scheduled to be a temporary expedient, indicates a blurring of the traditional practice of matching the nature of the materials and the structural system with the expected life of the building on the site on which it was first erected.

The change in the nature of the overall design of schools was not confined to those in Canterbury and in 1975 the Department released a proposal for a new type of secondary school. The Whanau House, touted as the successor to the S68, was the fruit of a collaborative project between the Department of Education and the Ministry of Works; the planning team was drawn from the architectural departments of both these agencies but significantly, membership of this group also included three board architects, one of whom was Fred McCook.[81] It is likely that his appointment was recognition that Canterbury's development of CEBUS was seen to be relevant to the new ideal of a systems approach that was forecast to be based on a high degree of prefabrication, stockpiling of components, and possibly a method exemplified by the delivery to the site of 'roof modules…completely finished and sealed.'[82] Conceptually the Whanau House was based on the notion that the ideal secondary school should be established around 'houses' of 250 pupils, thus creating home groups small enough for children to relate to while still being part of a larger schools with rolls between 1000 to 1250.[83] This system of breaking down the

[81] ANZW, ACIG, 1276, W2144, box 1. The other board architects were S.Mrkusic of the South Auckland Education Board, and A. Witten-Hannah from the Auckland Education Board. Department of Education and Ministry of Works and Development, *Secondary Schools For Tomorrow-A new approach to design and construction,* Wellington, 1975, p.29.

[82] Ibid., p.16-18. Such a highly refined process had never been used in the construction of CEBUS buildings in Canterbury. It was up to individual contractors to work out their own supply chain systems and the degree to which they used prefabricated components could differ. Stockpiling of components would have been highly inefficient for builders who had to compete for contracts in an era when the typical job was one double unit or one Mark 3 multi-purpose room.

[83] The first Whanau House secondary school was Penrose High School, opened in 1977. A.T.S. Howarth, School Buildings 1877-1977, *Education,* Vol. 26, Number 7, 1977.

size of the buildings into child-friendly components was already a basis of the Canterbury intermediates of the early 1970s. The monolithic two-storey classroom blocks had gone; the industrial feel of Manning and Branston had been replaced by the atmosphere of a neighbourhood school with its outside room, the small courtyard, rather than the large quadrangle, becoming the focus of a pupil-centred facility from which the built areas of the school grew organically. Specialist rooms were integrated into the whole rather than consigned to the farthest wings as at Heaton and Linwood or, as with the Belmont model schools, dispersed into discrete double units which emphasised a kind of academic apartheid implying that woodwork and clothing were seen to be peripheral pursuits rather than a key part of the all-round development of eleven and twelve year olds.

There had been significant changes in materials used in construction; the wooden-floored buildings supported by concrete piles at Heaton and Linwood had progressed to the use of 3 inch concrete pads at Manning and Branston although in an apparent retreat, the rooms at Ashburton and Breens again rested on concrete piles, a foundation type used to support the gang nailed system of the CEBUS timber structure, but perhaps also to hedge the Board's bets if there were to be another fundamental shift in educational fashion or if the schools were to become victims of suburban demographic change. The exterior cladding had moved from the use of the vernacular timber weatherboarding at Heaton and Linwood, an option partially retained for the Belmont model schools, but in a reduced format to allow the introduction of a complementary brick veneer to avoid the visual blandness of apparently endless wooden walls that were also much more expensive to maintain. The industrial aesthetic of concrete block and aluminium siding had a relatively brief currency at Manning and Branston before the homelier shiplapped timber accents complementing asbestos and cement board became the *lingua franca* of local educational architecture.[84]

By the end of the 1970s, the post war schedule of the building of new intermediates had effectively halted although there had been no announced policy change. The Board clung to its hope that the programme of constructing new schools would be resumed; certainly the carefully acquired sites were retained into the next decade, until one by one, they were released, the

[84] By 1977, the NZEI had become worried about the danger of using asbestos cladding but the CEB Building Department defended its use 'in the absence of any definite proof of dangers to the health of children' although it was agreed that care would be taken in cutting the material. CEB Minutes, Building Committee Minutes (Confidential Section), 17 August, 1977, p.328.

ownership reverting from the Board directly to the Crown, assets gratefully received by the cash-strapped governments of the 1980s.[85]

[85] The last site relinquished was that acquired and retained for the planned Opawa Intermediate. After the primary school committees in the area had continued to indicate a lack of enthusiasm for the project, the Board finally resolved that the land be returned to the Crown. CEB Minutes, Building Committee Minutes, 5 December, 1988, p.765.

Chapter Ten. Building on the West Coast.

The relatively benign climate and physical geography of the Canterbury plains is not replicated in the area known as the West Coast, a difference that had an observable effect on the building and maintenance of schools in this relatively isolated part of the Canterbury district. The defining natural feature of the South Island of New Zealand is the mountain chain known as the Southern Alps that provides a rain shadow area for the Canterbury plains to the east while creating the phenomenon of orographic rainfall for the narrow strip of land between the Alps and the Tasman Sea to the west.[1] The contrast in rainfall figures is stark. The annual precipitation of Christchurch, 648 mm., can be taken as reasonably representative of the plains while the major centres of the West Coast, Greymouth (2875 mm.) and Hokitika (2763 mm.) experience nearly four and half times this amount, and further south, Haast reaches 3400 mm.[2] .The problem of heavy rainfall is, in some areas, exacerbated by a geological feature known as *pakihi*, a problem well illustrated by the Moana School Committee's criticism of the site chosen by the CEB for the new school in 1927. 'The site is swampy… impossible to drain without laying pipe and cross drains. The ground consists of 6 inches of soil and 12 inches of puggy clay on a bed of sandstone rock.'[3]

Yet the coastal strip and its hinterland were resource-rich. The gold rush based on alluvial deposits was relatively short-lived, being at its most intense from 1863-67, but a change in method to gold dredging and hard rock mining with its associated crushing plant technology maintained production well into the twentieth century. Large deposits of bituminous coal were also exploited from the 1880s, especially in the Greymouth area, an industry which survived into the twenty first century.[4] The felling and milling of native timber also commenced in the late nineteenth century and developed further in the twentieth century. All these industries were extractive and settlement tended to follow the availability of exploitable resources, thus many of the smaller towns were inhabited by transient populations which in extreme cases could lead to some settlements declining to the point where public facilities such as schools could no longer be

[1] The schools under the jurisdiction of the CEB ran from Totara Flat in the north, and from 1949, to Haast in the south. The schools at Otira and Arthur's Pass, located on the road and rail link that runs through the Southern Alps, were also administered as part of the West Coast.
[2] Unless otherwise stated, all climatic statistics quoted in this chapter are derived from www.worldweatheronline.com
[3] Letter from the Moana School Committee, CEB Minutes, Building Committee Minutes, 20 July, 1927, p.2083.
[4] Malcolm McKinnon (ed), *New Zealand Historical Atlas,* plates 44 & 63.

justified and were sometimes abandoned or disassembled to be re-erected elsewhere. Even after the Second World War this phenomenon was still observable; in 1947 a report on the condition of schools on the West Coast was prefaced by the statement that

> Beyond Greymouth and Hokitika… the country is sparsely populated with in some cases, a moving population which results in fluctuating school rolls which consequently affects school status and determines the grades of the schools and the strength of the staff, resulting sometimes in changes of teachers and upsetting the accommodation provisions [5]

The Westland Education Board, set up as a result of the 1877 Education Act, had torn itself apart when bickering between Greymouth and Hokitia resulted in a breach so serious that the already thinly populated district fractured into two tiny and even less viable units from 1884.[6] The Westland Board had already provoked censure when the Department pointed out that on a per capita 'pupil management' basis, Westland had spent four and a half times as much as the North Canterbury Board and six times as much as the parsimonious Otago Board.[7] There was little improvement after the split; in fact it has been alleged that there were several periods when both boards' assets were effectively owned by the banks.[8] In this context it is easy to understand the lack of enthusiasm of the North Canterbury Board on learning that the West Coast boards, with their reputation for financial profligacy and chronic maladministration, were to become part of the new Canterbury district. There is some evidence of a rather patronising attitude towards West Coast committees by the CEB after the merger. For example, in 1924, the Cobden School Committee had been promised a grant of £100 to upgrade facilities and on enquiring when this amount would be paid, the Board's Building Committee resolved that this would not be done until it could be satisfied 'that the money is to be wisely expended'[9] This was, however, a relatively isolated example, and on the whole the Christchurch-based administration made a conscientious effort to treat the area fairly and consistently, an attitude that was at least partially engendered by strong West Coast representation on the Board.

The West Coast was initially entitled to two members of the new Canterbury Education Board of twelve; the most significant were Henry Bignell, a building contractor from Greymouth, and

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[5] Report to the Board by four members acting as an inspection team, CEB Minutes, Building Committee Minutes, 21 May, 1947, p.322.
[6] The creation of two new entities, the Westland and Grey Boards, required an Act of Parliament, the legislation being shepherded through the House of Representatives by local member R.J Seddon, later the New Zealand Premier. The background to this issue is covered by a summary prepared for the CEB by A.J Shannon, a copy of which appeared in the CEB Minutes, 26 May, 1960, pp.338-9.
[7] *AJHR,* 1884, E-1, p.3.
[8] CEB Minutes, 26 May, 1960, p.339
[9] CEB Minutes, Building Committee Minutes, 15 October, 1924, p.1137.

Richard Wild, a Hokitika accountant. For long periods each maintained the confidence of their constituencies, the local school committees,[10] and this enabled them to build up the contacts and corporate knowledge to advocate for their areas formerly administered by the Grey and Westland Boards. The time commitment for a Board member was three days per month in Christchurch for attendance at the meetings of two standing committees and one full Board meeting. For the West Coast members, both of whom had other careers, the sacrifice was greater, as at this stage, two days' travel would also be required via an enervating return motor vehicle trip over the tortuous Arthur's Pass road, although the journey to Christchurch was eventually simplified, if not abbreviated, after the completion of the Otira rail tunnel in 1924 allowed the opening of the Midland Railway line from Greymouth to Christchurch.[11] Local members were also expected to conduct personal investigations into contentious local issues, including checking the validity of claims of school committees as to the necessity for the repair or replacement of buildings claimed to be defective. The CEB maintained a workshop in Greymouth with a permanent foreman and a full-time clerical assistant, thus giving the Board the opportunity to carry out maintenance work or even to build or remodel schools by using daily labour.

An analysis of the minutes of the CEB Building Committee in the interwar period reveals the poor condition of the building stock of West Coast schools. It is true that many of these issues were simply a reflection of the extreme climatic conditions of the area but the problems may have been exacerbated by under-spending on maintenance and even the lack of provision of basic facilities before 1916. For example, in 1929, the Taylorville committee applied for a shelter shed. The CEB's application for funds to build this structure was refused by the Department, but the Board pursued the matter, and in appealing the decision, explained that 'it is very necessary to protect children from the boisterous Coast weather.'[12] In the same year the CEB moved to improve the conditions of a particularly unpleasant boys' 'out office' at Runanga where the sodden ground resulted in the pit continually caving in. The Building Committee immediately approved the construction of new facilities that featured a corrugated iron roof and the luxury of a concrete floor and urinal.[13] The school at Slaty Creek had had so little maintenance that the Building Committee did not object to the expenditure of £20 to cover re-

[10] Bignell was a member of the CEB from 1916-38 and Chairman in 1923-24 and again in 1932. Richard Wild was a member from 1925-41 and Chairman in 1929, Nimmo. p.67.
[11] Alan H. Grey, *Aoteoroa & New Zealand: a historical geography*, Canterbury University Press, Christchurch, 1994, p.335. An alternative route was available from 1938 with the development of the Lewis Pass, a longer but less challenging road link between the West Coast and the Canterbury Plains.
[12] CEB Minutes, Building Committee Minutes, 3 March, 1929, p.76. This perseverance paid off; a month later the Minister of Education approved the expenditure. Ibid., 4 April, 1929, p.107.
[13] Ibid., 18 December, 1929.

piling, repairs to the floor, the provision of new window joinery to replace rotten frames and sashes, exterior painting as well as the replacement of the chimney, although the latter had possibly been damaged by the Murchison earthquake earlier in the year.[14] Consideration of more detailed case studies is perhaps an equally valid method of investigating the way in which the CEB attempted to fulfil the needs of West Coast communities; certainly this approach encapsulates many of the problems facing the planners and builders of schools in relatively isolated areas.

Te Kinga is located near the north west shore of Lake Brunner, approximately 42 kilometres from Greymouth, a considerable journey in the context of the state of communications in the first half of the twentieth century in country subject to heavy rainfall and the consequent danger of slips and washouts. At the beginning of that century, the township featured a timber mill, a post office, a hotel that catered for the social needs of the population and a railway link used principally to transport milled timber to Greymouth.[15] The school provided by the Grey Education Board in 1893, had, by 1908, in the opinion of the Board inspector, degenerated to the point whereby its condition was 'unsanitary [and] dangerous' and needed urgent replacement.[16] The proposed building, as sketched by the Grey Board's architect, shows a basic timber and corrugated iron structure that appears modest enough, but he felt it necessary to defend two embellishments: a porch 'to keep out the driving rain' and a closed-in veranda justified on the grounds that 'in the rainy climate, a place for drenched cloaks and hats was essential.'[17] **(Fig.99)** Thirty years later, this school had, in the opinion of the Te Kinga Committee, reached the end of its economic life. At first, its request was for remodelling only, although the itemised list of required actions was a long one and included the re-orientation of the building to the north, the provision of adequate heating, the installation of 'modern' windows, the repair of defective piles and attention to the cracking of the interior lining.[18] Some of these problems appear to be consequences of high rainfall, possibly exacerbated by the use of local green timber in the original construction process, a building material subject at best, only to 'West Coast seasoning', a process considered by John Bigg to be suspiciously perfunctory.[19]

[14] Ibid.
[15] Information from www.fly-fishing-guides-new-zealand.co.nz/history.htm
[16] ANZC, CAMQ, 2261, CH690, box 29, Record 7/8, Part 1, 15 July, 1908.
[17] Ibid. 6 July, 1908. The plan was the work of the Grey Board architect, Edward Lord.
[18] Ibid., Letters from the Te Kinga School Committee to the CEB, 9 May and 27 July, 1938.
[19] See Chapter 5, p.89 of this thesis for Bigg's refusal to sanction the use of this product in CEB schools.

The CEB asked the then local member, Ernest Ellery, to visit Te Kinga to investigate the state of the school; his response was that conditions were so poor that no money should be spent on repairs and that a new building should be provided as soon as possible. He was realistic enough to realise that replacement was not likely to be immediate and therefore recommended the installation of a slow combustion stove which hopefully would alleviate the worst problem, the bitterly cold winter temperatures inside the classroom. He stressed that a new school would be a good investment as the local timber mill would be viable for another 18-20 years and the cut-over areas were scheduled to be developed as farms.[20] The always slow process of planning and obtaining the necessary permission was further retarded by wartime conditions that dictated the need to navigate through another layer of bureaucracy, that of the Timber and Building Controllers. It was not until August 1944 that Bigg's plans were ready and the new school that had been deemed to be urgently required in 1939 was not completed until 1946. It is almost certain that Bigg planned the school without inspecting the site, an omission that was to be partially responsible for the construction costs exceeding the Departmental grant by more than £500. The argument between the CEB and the Department was not resolved until 1950 as the former sought to justify the application for an additional grant to fund the shortfall.[21]

> The site was marshy… a large ring drain had to be dug … and foundations on concrete and piles had to be carried down to extra depth to obtain a solid bearing.

To make matters worse, the decision to use labour hired by the Board rather than to put the contract up for tender also had a financial consequence.

> The Board's workmen were accommodated at the local hotel where the tariff was much in excess of the usual tradesman's country allowance. Owing to inclement weather there was a considerable amount of stand-down time which had to be paid at full rates.[22]

Bigg had chosen to use the standard veranda block to replace a two-teacher school where the inadequate existing single room had been divided by a curtain to create two teaching spaces; his design is an interesting study of an inflection of the contemporary Canterbury plan, adapted for West Coast conditions.[23] **(Fig.100)** Two classrooms 24 x 22 feet were divided by a cloakroom (22 x 10 feet). Rudimentary toilet facilities were provided in a separate temporary facility based on an open pit, although conditions were eventually improved in 1955, with the installation of a

[20] Report by Ernest Ellery, CEB Minutes, Building Committee Minutes, 13 December, 1939, p.592.
[21] CEB Secretary Manager to Director of Education, ANZC, CAMQ, CH690, 2261, box 29, 17 May, 1950.
[22] Ibid.
[23] The drawings for this design are held at ANZC, CAMQ, CH564, 3253, box 299.

septic tank to replace the system of piping effluent directly into a soak pit on school property. The use of a veranda block oriented to the northwest certainly introduced more natural light into the rooms but the consequence was an exposure to the direction of the prevailing rain-bearing wind; Bigg had tried to mitigate this problem by the use of three fixed and partially glazed screens, parallel to the north west-facing classroom wall, two of seven feet in length at each end of the veranda and a section of ten feet in the middle of this structure.[24] On rainy and cloudy days the classrooms would have been gloomy; although electricity was available, the only artificial illumination was one lamp in the centre of each room. Electric heaters in each classroom provided clean and instant warmth. Outside, a concrete paved 'assembly slab' of approximately 1750 square feet butted directly onto the veranda and would have provided a play area when conditions were too wet underfoot for pupils to use the grass playground.[25] The school roll in 1945 was 45, by 1964, CEB records show that the roll had fallen to 16 with one of the two rooms declared redundant,[26] and in 1969, the CEB informed the Department that the school had been closed.[27] The remaining school-aged children in the area were conveyed to Rotomanu School, the next town on the road south.

The small school at Moonlight Creek[28] provides another example of the dilemma that the CEB could be faced with as it tried to allocate its funds wisely. The original room inherited from the Grey Board was little more than a dilapidated shack and in 1924 the Board replaced this with a small modern building and an associated shelter shed. **(Fig.101)** In 1952, this sole charge school was remodelled and increased in size to 416 square feet and in 1973 a cloak room and storage facilities were added bringing the area of the building up to 595 square feet, however, by 1978, the school was still under code as it lacked a book store that was supposed to add 100 square feet of space. In his report, the Board's Buildings Executive Officer noted that the existing roll of 20 was scheduled to fall to 10 within four years and that therefore 'any lack of space will become

[24] Bigg later used this system on the Canterbury plains for example at Wairakei, Ilam and Marchweil, although in these cases the screens were probably also aimed at providing some shelter against wind as much as rain. See for example, the photo of Wairakei School, in the *CEB Annual Report*, 1950.
[25] The number of wet days in Te Kinga averages 182 per year.
[26] *Canterbury Education Board: official tour of West Coast Schools, Wednesday 22nd April to Thursday, 30th April 1964* , CEB, p.47.
[27] Spencer to Regional Superintendent, ANZC, CAMQ, CH 690, 2261, box 29, 13 May, 1969.
[28] This school, formerly located in the Grey Valley, should not be confused with the Macraes-Moonlight School in East Otago.

less acute as time passes',[29] a tacit recommendation that the requested investment was not justified in a school that apparently had no viable future.[30]

A major theme during the CEB's administration from 1916 to 1989 was the degree of consolidation of smaller schools, to some extent a function of improved communications, especially in the provision of better roads that made the bussing of pupils a more realistic option. A document prepared by the CEB in 1964 presents a snapshot of the state of West Coast schools at this time; the number of school children was approximately the same as it had been nearly half a century before, but the number of schools had decreased from 70 to 48.[31] Yet 25 per cent of the remaining schools still had rolls of less than 20 and of these, four had 10 or fewer pupils, and were, therefore, teetering on the cusp of closure. At the other extreme, rolls in the three Greymouth schools of Greymouth Main, Cobden and Kaoro totalled 850 and the second largest town, Hokitika, had 343; overall the 48 state schools had a mean roll of 67.[32] To place this in perspective, in 1964, the total number of schools in the Canterbury district excluding the West Coast was 270 and the mean roll was 202,[33] thus, the comparative lack of economies of scale in the West Coast area guaranteed that the administration cost per pupil would be much higher.

In 1964 the CEB apparently decided to make a major effort to better understand the conditions on the West Coast; an expedition comprised a party of eleven Board members, three senior staff, two senior NZEI representatives, two officials from the Department's Southern Regional Office, and three 'Accompanying Ladies', wives of three of the official party. The precise objectives of this tour were not noted but if the whole exercise was a junket, it was not a leisurely one, the group had an official timekeeper to ensure that the target of visiting all 48 schools was achieved within the eight days allocated; for example on 23 April, eight schools were scheduled between 9am and 3pm.[34] Just what could be achieved by such a breathless exercise is not clear,[35] but the

[29] CEB Minutes, Building Committee Minutes, 18 December, 1978, p.242.
[30] Ironically, Moonlight School was to outlast the Canterbury Education Board itself. The school was finally closed in January 2005 with a roll of 12. Information from Dean Alexander, Manager, Indicators and Reporting, Ministry of Education, 7 January, 2013.
[31] These figures and the subsequent analysis are based on a cyclostyled booklet issued to those who participated in the Board trip to the West Coast in 1964. *Canterbury Education Board: official tour of West Coast Schools, Wednesday 22nd April to Thursday, 30th April 1964.*
[32] Ibid., Analysis based on attendance figures for February 1964, pp.8-57.
[33] Calculations based on figures from the Summary of Attendance Returns, a non-paginated appendix to the Canterbury Education Board Annual Report, 1964.
[34] *CEB: official tour of West Coast Schools…* p.45.
[35] In a perfunctory report to the full Board, a few anodyne comments could not hide the fact that the trip was an expensive waste of time. This was virtually admitted in the final comment when it was conceded that 'the trip was a

episode produced at least one benefit for the architectural historian; David Waghorn, the Chairman of the Board's Building Committee, took photographs at almost all whistle-stops on the itinerary.[36] Unfortunately this potentially valuable record was marred to some extent by the low quality of some of the images, especially those taken on rainy and cloudy days. However, this evidence indicates the existence of a wide range of structures from modified prefabs to four schools boasting brick or concrete block accommodation designed to the 1956 Building Code, while the most numerous buildings were the thirteen examples of the basic veranda block in various configurations ranging from one to three rooms; those built after the Te Kinga School in 1945-46, all featuring partial screening of the verandas. As a generalisation, one-teacher schools appeared to be more likely to feature makeshift facilities; many of these structures would have been moved around the region as the rolls in more isolated schools waxed and waned; the CEB was reluctant to invest in permanent rooms that could well become redundant at very short notice.

Any attempt to make comparisons about the nature of the building stocks on the West Coast relative to those on the east of the alpine divide is fraught with difficulty. Waghorn's photographic survey of 1964 was not replicated for the rest of the Canterbury District although the Building Department's New Buildings Ledger does provide a pictorial record of at least some of the additions made to the permanent accommodation stocks of each school.[37] It should be remembered, however, that in the mid-1960s, many schools, especially in the fast-growing suburbs of Christchurch, had motley collections of prefabs in varying stages of repair at a time before the more substantial unit rooms and CEBUS relocatables took their places. One factor that contributed to the rundown appearance of some West Coast schoolyards was the problem referred to earlier in this chapter, the existence of thin soils overlaying an impervious substrate that led to many playgrounds effectively becoming swamps and, without expensive drainage, making it almost impossible to lay and maintain the grassy areas that children on the east coast of the Canterbury district took for granted.

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happy one but perhaps it was too long… Members themselves see too many schools, and meet too many people, to have a really clear idea of each place.' CEB Minutes, 22 May, 1964, p.132. In comparison, the 1947 Board trip to the West Coast was carried out by four officials and the output was a highly analytical eight page report. CEB Minutes, Building Committee Minutes, 21 May, 1947, p.322-329.

[36] ANZC, CAMQ, 12457, CH 437, box 4. This box includes photographs of West Coast schools taken over the period 1916-89. Waghorn's contributions are dated i.e. 1964.

[37] ANZC, CAMQ, 12457, CH437, boxes 178, 179 & 180.

In the late 1960s, the CEB moved to extend the benefits of intermediate education to areas outside Christchurch with population bases large enough to justify this expenditure. Greymouth was the only centre on the West Coast that could qualify for the construction of such a school but finding an adequate site was to prove difficult. The Board already owned land in Joyce Crescent that had been purchased in 1941, but this site was small, less than three acres in comparison to the post-war Christchurch intermediates, which, with the exception of Linwood Intermediate, were built on sections of at least eight acres.[38] A complicating issue was that the town's largest primary school, Greymouth Main, included a large load-bearing brick building, constructed by the Grey Board in 1906; the gables had been removed in 1933 to eliminate the most obvious hazards in the event of an earthquake, but in 1953, John Bigg's report noted that the building was subject to dampness as a result of poor drainage under the floor. There were cracks in the foundations and the brick walls, and some of the linings were subject to borer and dry rot. Bigg recommended that the building should be replaced within three years.[39] Yet nothing was done until after the Inanaghua Earthquake in 1968 when the building was reclassified for' immediate' replacement.

Eventually it was decided to rebuild the primary school on the land at Joyce Crescent, thus forcing the Building Department to erect a two-storey block of eight classrooms to make the best use of the scarce space on the site. The existing primary school, between Turumaha and Tainu Streets, was to be redeveloped as the intermediate school; there were some advantages in such a decision as a basic block of woodwork and cooking rooms already existed as did four relatively new classrooms, all buildings which dated from 1966-67. An existing assembly hall would also be retained although it would need to be enlarged, but this was still a cheaper option than building a new one. The unsafe brick block was to be demolished and replaced with five new classrooms, a new library, science room and an arts and crafts room as well as a new administration block. The initial roll did not justify the full complement of specialist rooms so the school was to open without the facilities to teach metalwork and clothing.[40] The CEB was

[38] The documents that provide the background to the developments of the new primary school at Joyce Crescent are at ANZW, ABEP, 7749, W4262, box 100.
[39] CEB Minutes, Building Committee Minutes, 17 June, 1953, p.292.
[40] On 22 April, 1969, the Director General of Education wrote to the Ministry of Works and the Treasury, summarising the background to the decisions made about the future developments at Greymouth Main Primary and Greymouth Intermediate. Treasury had stalled the project for two years arguing that the population of Greymouth was projected to fall and that it would be more efficient to use temporary rooms as a response to the short term capacity problems of Greymouth primary schools. Eventually a political decision was made that the West Coast was a special case as mine closures and lack of alternative employment opportunities made it imperative to provide some stimulus to the local economy. The documents that provide the background to the developments of the new

finally given permission to commence the working drawings in December 1971 and these were completed by John Arthur in 1972. In 1973, the CEB formally applied for funding for the project noting that the successful tender had been supplied by the Christchurch builders, Duffield and Barron, and that a local Greymouth business had been awarded the heating contract.[41]

Arthur's design[42] was conceptually very similar to his work at Ashburton and Breens Road, a cluster of four classrooms, one of 750 square feet, two of 625 square feet and one of 500 square feet, revolving around a resource room and delineated by corridors lined with lockers. This inner core was complemented by the new science room and the arts and crafts rooms to the west and the library and large classroom of 1000 square feet to the east. The planned reuse of the existing assembly hall situated to the north of the site precluded its incorporation into his design concept as used at Breens Road and Ashburton. The administration block included the expanded facilities mandated under the 1971 code; this building was a square of 2000 square feet, tied to the new main block by the umbilical cord of a covered way, while Arthur's personal motif of a pyramid-like roof for the ancillary buildings of the intermediates was very much in evidence. (**Fig. 102)** The new structures were tightly aligned along an east-west axis but the overall symmetry of the design was marred by the need to work within the constraint of the requirement to retain some of the existing buildings; thus Arthur faced a situation very similar to that which challenged him at Ashburton.[43]

The new blocks were constructed using the same CEBUS technology that featured asbestos and cement board cladding as used at Ashburton and later at Breens Road, but the choice of a new roofing system proved to be disastrous. The product had been developed by the British Steel Corporation and consisted of galvanised iron sheeting covered with a plastic finish. Unfortunately British design could not cope with West Coast rainfall, and within two years of the school opening in 1974, the plastic coating had degraded to the point where fragments had been washed into the guttering and downpipes causing blockages and resulting in water damage

primary school at Joyce Crescent and the intermediate at Tainui Street are at ANZW, ABEP, 7749, W4262, box 100.

[41] Ibid, 4 January, 1973. The lowest tender of four was $213,640 and Batty and Sweeny's price for the heating installation was $28,874.

[42] The drawings for Greymouth Intermediate are at ANZW, ABGC, W343, box 11.

[43] See Chapter Nine, pp. 178-179 of this thesis.

inside the buildings. By 1977, the CEB had commenced an attempt to have the buildings re-roofed at the expense of British Steel's local agents.[44]

South Westland was always much more sparsely settled than the Greymouth and Grey Valley areas and the development of the educational facilities in the small town of Harihari is an interesting study of the CEB's response to the problem of providing adequate infrastructure at both primary and secondary levels for a remote area whose small population was bound closely to the fortunes of the logging industry. This town, 73 kilometres south of Hokitika, was a natural focal point for smaller settlements strung out along the main road that also provided access to the Fox and Franz Josef glaciers and would, in 1965, assume even more importance when the Haast Road was opened, thus putting South Westland on the tourist circuit of the South Island.

The first CEB building provided for Harihari School, in 1926, was the work of George Penlington, whose design was similar to those provided for country areas on the east coast of the Canterbury district. (**Fig. 103**) The plan showed a single building consisting of two rooms, each of 430 square feet, both heated by open fire places. The six feet wide corridor to the south west of the structure was divided into a porch providing a cloakroom area and a small teachers' room of about 60 square feet. The site plan indicated one considerable drawback for teachers and pupils, an unsheltered and lengthy trek to the rudimentary toilet facilities. In 1947, the CEB consolidated the three small schools in the area but the enlarged roll at Harihari did not result in new buildings: the required extra classroom was shifted from the disestablished school of Te Taho to the south, while Evans Creek to the north contributed a fuel shed which was dismantled and re-erected on its new site.[45]

By the late 1960s, the demand for some form of post primary education in the area led to the CEB's decision to upgrade the school at Harihari, by then consisting of five rooms and an assembly hall, to a facility that would also offer secondary education but under the primary umbrella; the school was duly rebranded as the South Westland District High School to reflect its new status and the project was completed in 1971.[46] The construction system was the CEBUS type of asbestos sheets over plywood sarking and building paper; the new science/commercial

[44] CEB Minutes, Building Committee Minutes, 12 December, 1977, p.493. The dispute was still unresolved in 1980. Weston, Ward and Lascelles to CEB, ANZC, CASY, CH229, box 22, 16 June, 1980.
[45] Ibid., 16 April, 1947, p.324. The closures of Te Taho and Evans Creek were officially recorded in the *CEB Annual Report,* 1947, p.4.
[46] The plans for the South Westland District High School are held at ANZW, ABGC, W3643, box 62.

block was one of the first examples of the use of the Mark 2 relocatable, its flexibility allowing the subdivision of the space to cater for a science preparation room and a smaller annex within the commercial room to enable typing to be taught to small classes. The school was broadly divided into a junior section, mainly primary classrooms, and a secondary area consisting of the specialist spaces including a designated social studies room. In deference to the climate, the covered way that ran along a north-south axis linking the primary and secondary sections was basically a walled-in corridor although extensively glazed on both sides.[47] **(Fig. 104)**

However, the era of the district high school was already ending, as in the early 1970s, the Department of Education moved to address the problem of inequality of opportunity in rural schools, especially in the lack of facilities for secondary students. The area school aimed to provide pupils from new entrants to Form 7, with quality education and the physical conditions that would be taken for granted by staff and students in urban schools.[48] The translation of the Harihari School from its district high status into the South Westland Area School was announced in February 1975, although it took another three years of planning before the formal announcement of the letting of the contract for the new facilities in January 1978; it was calculated that when the project was completed the school would cater for a roll of 245 pupils.[49] The two major additions were a new auditorium/gymnasium to replace the existing small hall and the provision of a freestanding library, the latter providing a space of approximately 125 square metres. This building was linked to the rest of the school via the existing covered way system and was accessed through an entry lobby with associated toilet facilities. A new music suite was also built providing a teaching space, practice facilities and storage for instruments. Extensive remodelling of existing buildings included the subdivision of the former commercial room into seminar rooms, recognition that some senior classes would be very small, as well as an associated resource room. The administration wing acquired extra office space while the former Social Studies room was revamped as a homecraft room. Construction was carried out by C.

[47] By 1986, serious maintenance issues had occurred with this structure and a series of photos were filed, showing problems with the development of large holes in the cladding on both interior and exterior walls of the covered ways. Whether the damage to the walls of the covered way was accidental or the result of vandalism, the lack of plywood substrate in the walls of the structure had obviously exacerbated the effect of any initial impact. ANZC, CAMQ, 12457, CH437, box 1, item 76.

[48] The secondary department of a district high school catered for pupils from Form 3 to Form 7 while that of the area school covered Form 1 to Form 7 students.

[49] Departmental press statement, ANZW, 7749, W4262, box 108, 7/8, Part 2. The drawings for this project are at ANZW, ABGC, W3643, box 62.

Lund and Son, a firm that had previously constructed Watlington Intermediate; the overall cost of the new area school was $550,000.[50]

As has already been noted, there is some evidence that the CEB Building Department came to realise that it was not appropriate to assume that planning that had proved adequate for the dry Canterbury Plains could be replicated for the West Coast although the foregoing examples show that at best, the designs tended to be standard CEB models subject to minor modification that it was hoped would provide at least some defence against the climatic extremes to which they would be subjected. However in at least one case, the Board's Building Department made a conscious attempt to meet the challenge of designing a building to cater for uniquely challenging circumstances.

The small settlement of Arthur's Pass was based on the requirement to house railway workers and also provided accommodation for staff associated with the local National Park that was established in 1929. The growth of the area under the jurisdiction of the Park administration eventually created the need for more staff and hence a potential increase in the number of school aged children.[51] In 1961, a confidential inspectorial report alleged that the only classroom of the existing school, a building rented from the National Park Board, was 'insubstantial [and]… decidedly dingy.' The roof leaked and the Romesse stove was prone to smoking inside the room, while the situation of the school, immediately adjacent to the noisy main highway, was far from ideal.[52] After negotiations involving the CEB, the Arthur's Pass National Park Board, the Ministry of Works and the Commissioner of Crown Lands, a site, set back from the road, was made available. The latter official pointed out that 'landscaping must be in keeping with the character of the area', no introduced species of plants or trees being permitted and that construction materials used on the building should be in sympathy with the natural environment.[53]

The local school committee was also a keen participant in the planning process; the Board was duly advised of the climatic realities of life at Arthur's Pass and it was requested that the new

[50] Analysis of tenders for South Westland Area School, Teleprint from Southern Regional Office to Head Office, 9 January, 1978. ANZW, 7749, W4263, box 108, 7/8, Part 2.
[51] An illustration of the growth of the area of Arthur's Pass, National Park can be found in McKinnon (ed), *New Zealand Historical Atlas*, Plate 62.
[52] Confidential Report from M. Simpson , Inspector of Schools, to the Department of Education, ANZC, CAMJ, CH191, box 18, 17 April, 1961.
[53] Commissioner of Crown Lands to the District Commissioner of Works, ANZC, CAAY, CH134, box 958, 11 August, 1961.

school should include a large cloakroom that could also be used as a play area during lunch times and intervals, a facility made necessary because of the large number of cold and rainy days that were experienced in the village. The argument was buttressed with data, viz., the annual rainfall was 192 inches per year (4877mm.), in other words the village experienced 70 per cent more rain than Greymouth, there were 165 wet days per year, and because of the location deep in the Southern Alps, the effective mid-winter sunrise was at 11:30 am with 'sundown' occurring at 2 pm. Moreover, even on sunny days, the average temperature at 11am in the winter was only 18 degrees Fahrenheit, and by 2 pm was only a marginally higher 20 degrees (i.e. -7.7 and - 6.7 Celsius).[54] The initial concept sketch for the new building was circulated among stakeholders; the Park Ranger's criticism that the entrance lobby access should be changed from the north to provide shelter against the prevailing wind and rain from the north west was heeded,[55] and an exterior porch and screen on the east side of the building was duly incorporated in the final plan that was dated 24 September, 1962.[56]

Len Stone, the Building Department's Senior Draughtsman, played a substantial role in the design and recalled Assistant Chief Architect Robert Evenden's instruction to provide a building with an alpine appearance, hence the three feet overhang of the eaves that also had the facility to keep rain water and snow well away from the walls and windows.[57] The cladding was timber, board and batten, and the feature wall on the eastern aspect was faced with local stone. (**Fig. 105)** The building comprised two rectangles; the larger of 1120 square feet, included a teaching space of 630 square feet, as well as a tiled activity bay with a sink and an enclosed library alcove. This section of the structure also provided storage facilities, and a staff toilet. The smaller rectangle featured an entry lobby/cloak room, effectively an attached shelter shed, as well as pupil toilets. The lack of fenestration on the south side of the building, a decision made to retain as much heat a possible, posed a problem in that building standards required cross ventilation; the expensive solution, the Colt Ventilator was installed on the ridge of the classroom roof. The wide eaves restricted the admission of natural light and this problem was eased by the insertion of clear corrugated plastic Novaroof panels along the whole ridge line above the teaching area; the use of fibre glass insulation in the roof was another response to the extremely cold local conditions. The project generated interest from the print media, both major

[54] Ibid., A.G. Long to CEB, 12 December, 1961.
[55] Ibid., Senior Ranger to Arthur's Pass National Park Board, 29 November, 1961.
[56] The preliminary sketches, supporting documentation, correspondence and drawings for the new school are held at ANZC, CAMJ, CH191, box 18.
[57] Interview, Len Stone.

Christchurch papers running illustrated articles,[58] while the NZEI journal, *National Education,* also featured the new school with apparent approval, although, at Bigg's insistence, care was taken to stress that the Board's Building Department had special licence to design a building that did not fit within the parameters of the White Lines funding model.[59] **(Fig. 106)**

Yet despite the careful planning, the school was plagued with problems; some were attributable to the inexperience of the architectural staff and builder in coping with the effects of the extreme climate, almost certainly the sternest professional challenge either party had faced. The Novaroof panelling along the ridge line attracted condensation that dripped onto the floor below, but the insertion of another layer of similar material leaving a 4 inch gap from the original appeared to solve that problem. The concrete pad outside the classroom, laid to enable the pupils to enjoy physical education, had cracked and lifted, a fault attributed to the lack of detail in the specifications that led to the contractor's use of local aggregate and sand rather than the graded and washed products available in Christchurch,[60] while less than a year after its application, the roof paint started to peel;[61] these were all issues that created cost overruns but were treatable despite the embarrassment caused to the Board. Ironically the biggest problem was of the Department's own making in that it overrode the CEB Building Department's wish to install oil fired heating and insisted on the use of a 'Stokermatic' coal burning system. It was government preference that public institutions should use domestically produced coal as fuel although the method then currently in use for single-classroom buildings, the Romesse slow burning stove, had been criticised for its inefficiency and the valuable classroom space it took up, while the reluctance of teachers to add the stoking of stoves to their already long list of professional duties was also seen as an issue. The American product, a thermostatically controlled automated system, that purportedly could deliver a consistent ambient temperature, was, therefore, attractive to the Department despite the fact that it was apparently untried in New Zealand conditions using domestically produced coal.[62]

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[58] *Star,* 12 June, 1963 and *Press,* 24 April, 1964.
[59] *National Education*, September, 1963, p.351.
[60] Spencer to Superintendent, Southern Region of the Department of Education, ANZC, CAMJ, CH191, box 18, 8 July, 1965.
[61] Ibid., intra-office memo, Spencer to Bigg, 11 November, 1964.
[62] The Department sent the CEB a series of letters suggesting, advising and finally directing the use of the Stokermatic system. ANZC, CAMJ, CH191, box 18, Archer to CEB, 15 June, 23 August, and 11 October, 1962. CEB Assistant Chief Architect, Robert Evenden, had formally recorded his reservations about the American product and his preference for an oil-fuelled system. Intra-office memo, Evenden to Dysart, ibid, 9 July, 1962.

Complaints were not long in coming; in mid-1965, a parent whose child attended the school, wrote to the school committee claiming that the heater did not warm the room adequately, that it was so noisy that children had difficulty in hearing the teacher and that coal dust was 'ingraining' into books, and furniture, and, he maintained, surely this also constituted a danger to children's health.[63] When forwarding this letter to the Board, the committee added its own criticism; the expensive grade of coal required had resulted in the fuel grant being exceeded and in general terms even the traditional Romesse stove was a superior form of heating.[64] The school's teacher later wrote directly to the Board advising that the heater's fan had broken down and that consequently the appliance was dangerously hot even though the room was still too cold.[65] Adequate servicing of the Stokermatic proved difficult to organise and finally Bigg took simple remedial action by taking the school committee at its word; a Romesse stove was installed at the opposite end of the classroom and, at his suggestion, the Stokermatic was left *in situ* to be used in the evenings and weekends on low settings to provide background heat, presumably to help retain the building's integrity against the hard frosts and snow over the winter months.[66]

There is no doubt that the West Coast climate and geology were demanding and that the building and maintenance of schools were more difficult propositions for the Board's Building Department than was the case on the Canterbury Plains, but another dimension of difficulty, the problem of shifting population, was also well recognised; this obviously affected the CEB's decision making about where and when to build, whereas the former could be expected to determine the nature of the buildings designed. On the whole, the planners attempted to employ models used in the wider Canterbury district although the West Coast missed out on the open-air revolution of the 1920s, a period when the CEB was bombarded by requests from Christchurch committees keen to emulate the fashionable Fendalton experiment; there is no evidence in the Board files that any West Coast school committee requested such a structure. However, as the original open-air room metamorphosed, firstly into the Temuka variant and finally into the 'fresh-air' veranda structure, Bigg's 'Canterbury plan' became the Building Department's design choice from the late 1930s to the mid-1950s. Arguably the modification of partially screening the veranda enhanced the acceptability of the building that had been so popular on the east of the main divide.

[63] Ibid., McNicholl to Arthur's Pass School Committee, 26 July, 1965.
[64] Ibid., Bell to CEB, 26 July, 1965.
[65] Ibid., Johnson to the CEB, 10 September, 1965.
[66] Ibid. Intra-office memo from Bigg to the Buildings Administration Officer, 14 June, 1966.

The stagnating population on the West Coast during the early 1950s meant that there was no call for new schools built to the Dominion Basic Plan but there are several examples of accommodation constructed to the 1956 code, for example at Lake Brunner and Ngahere in 1964.[67] The best example was at Hokitika, a primary school rebuilt at a new site in several contracts from 1961-69.[68] The school had the appearance of a large Christchurch suburban school of the 1960s with three rectilinear blocks built to the specifications of the then relevant code. However one difference is immediately visible; unlike the standard plan used by Bigg for Christchurch schools of this era such as Glenmoor, Briggston and Aorangi where the external entrance into individual classrooms was via a set of steps that led directly into each teaching space, the Hokitika design included a porch to provide some shelter in wet weather. **(Fig. 107)** The CEB was most insistent that this departure from the Departmentally-accepted norm was an extra expense that should not be included in the White Lines calculation because of the 'heavy driving rain from the north which is a feature of the West Coast.'[69] In another move that illustrates some awareness and sympathy for the difficulties of building in Hokitika, the CEB claimed a 'locality allowance' of £800, a contingency that it believed was reasonable because of the extra costs that contractors could incur, only to have the application trumped by the Department which thought that £1,200 would be more appropriate because of the likelihood of 'inclement weather' during the construction period,[70] an action virtually without precedent on the part of an institution whose traditional role had been to sniff suspiciously at all such claims for extra funding. The CEB was also prepared to accede to its architect's request that red brick cladding should be continued in the last contract for extra classrooms in 1969; despite the greater cost it was accepted that visual unity was an important consideration.[71]

By the early 1970s, the CEBUS conquest of school campuses whether primary, intermediate or area schools, was also evident on the West Coast as exemplified at Greymouth Intermediate and the South Westland Area School. The Board's policy to construct open plan classrooms was never an issue on the West Coast as no new primary schools were built in the decade from the mid-1970s, the period when the Board was keen to incorporate this design into new schools.

[67] See photographic evidence in ANZC, CAMQ, 12457, CH437, box 5.
[68] Much of the relevant documentation and most of the working drawings for this school are not available, however the correspondence and some drawings for the period 1963-69 are at ANZC, CAAA, 2261, CH45, box 14.
[69] Ibid., CEB to Superintendent, Southern Regional Office, 16 July, 1963.
[70] Ibid., Southern Regional Office to Head Office, 19 July, 1963.
[71] Ibid., Spencer's letter to the Superintendent of the Department's Southern Regional Office making this request, attracted an unsigned marginal comment approving this action. 9 April, 1969.

The 1980s was also a period of faltering rolls when it was hard to justify investment in new permanent accommodation anywhere in the Canterbury district; a request for extra accommodation deemed valid, tended to be met by the offer of a temporary room shifted from a school that had a surplus. Thanks to innovations in transport technology and improvement in roading infrastructure, the transfer of relocatable buildings to or from the West Coast could now be viewed as an almost routine operation; for example, in 1986, unit rooms were scheduled to be moved from Branston to Cobden and from Oaklands to Haupiri.[72]

During its seventy-three year jurisdiction over school building on the West Coast, the Building Department of the CEB acted on the assumption that plans developed for Christchurch and the towns and rural areas of the Canterbury plains could, with minimum changes, meet the considerable challenge of providing adequate accommodation for pupils and teachers in a climatic environment much removed from the conditions for which these buildings were originally designed. A good example of this is that in some larger schools, covered ways were used to shelter children moving from one block to another, but only at South Westland Area School in Harihari were the structures fully enclosed in recognition that provision of overhead shelter only was of little use in a situation when rain was driven by a northwesterly wind. No West Coast style had emerged; the only custom-designed structure, at Arthur's Pass, cost twice as much as conventional school buildings of the day and any attempt to widen its applicability to new accommodation in the area as a whole would have run into financial barriers at both Board and Departmental level. This is not to say that the West Coast was treated badly by the Board's Building Department; its attempt to serve the region's requirements was an honest one although financial considerations would always dictate that recognition of the special needs of the area would be piecemeal and reactive. The advent of Tomorrow's Schools in 1989 was arguably an advance in the quest for appropriate buildings as individual communities would be given the ability and financial flexibility to have a more direct input into the design of their own schools.

[72] CEB Minutes, Building Committee Minutes, 10 December, 1986, pp.871-872.

Chapter Eleven. Termination.

On July 21, 1987, the Prime Minister, David Lange, announced the formation of a task force to review education administration in New Zealand. The most unusual feature of this initiative was that the nominated chairman, Brian Picot, had no expertise in this field although he possessed considerable business acumen as illustrated by his success in establishing the Progressive Enterprises supermarket chain.[1] On 21 August, 1987, Lange himself assumed the education portfolio, and thus signalled that significant change was contemplated, although some found the Prime Minister's presence comforting as it was well known that at this stage he was trying to distance himself from the radical neo-liberal influence in the Labour government.[2] In the 1987 *CEB Annual Report*, probably prepared over the first three months of 1988, the appointment of the task force was noted, and the understated conclusion was that '1988 will no doubt bring more changes as a result of the release of the report.'[3] Keith McNeil, the last General Manager of the Board, was alive to the rumours of impending decentralisation, and had assumed that it would be the Department of Education's role that would be downsized and that the boards could well be expanded into organisations that would be responsible for all forms of sub-tertiary education in the regions. McNeil admitted that the key recommendation of the report released on May 10, 1988,[4] 'blindsided' him.[5] In one sentence the dominating education administrative structure of the last 111 years was slated for termination.

> There should be no formal structure at district level: we have proposed an administrative system in which each institution receives most of its funding from a central agency, undertakes responsibilities for defining its objectives within national objectives, and has control over the resources available to it.[6]

In August 1988, the Minister of Education issued his formal response to the Picot Report. In *Tomorrow's Schools,* published in August 1988,[7] Picot's recommendations were broadly

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[1] www.businesshalloffame.co.nz/**picot-brian**-hall/
[2] Lyall Perris, *Implementing education reforms in New Zealand: 1987-97,* Education reform and management series; vol.1, no.1, World Bank Human Development Network, Washington, 1998. This short study is particularly valuable in establishing the narrative of the relevant events over the period 1987-89.
[3] *CEB Annual Report,* 1987, p.16.
[4] The Taskforce, Brian Picot, *Administering for Excellence: effective administration in education,* The Taskforce, Wellington, April 1988.
[5] Interview, Keith McNeil.
[6] *Administering for Excellence,* p.53.
[7] Rt. Hon. David Lange, *Tomorrow's Schools, The Reform of Education Administration in New Zealand,* Government Printer, Wellington, 1988.

accepted and extra detail was provided as to how the changes would be implemented. Maintenance of buildings was to be the task of individual schools' boards of trustees, and finance for this was to be provided as part of each school's operating grant. New buildings, or capital works in the terminology of the document, would, however, be the responsibility of the Department's successor, the Ministry of Education, although individual school boards would have the right to approve final plans for new structures.[8]

Any attempt to review the work of the CEB's Building Department in the last decade of its existence is dominated by our knowledge of the events of 1988-89. This can lead to an implicit assumption that the 1980s was nothing more than a prolonged twilight period leading to an inevitable oblivion, a postscript to the real work of the board's designers and planners whose important work had effectively ended in the 1970s. However, this simplistic view, while understandable, needs more examination. Certainly the role of the Building Department as a designer of new schools had virtually ceased to exist; this was largely a reflection of the effect of the continuing phenomenon of the fall in school rolls that had become evident in the 1970s. This, in turn, was mainly a consequence of the continued decrease of the national birth rate as expressed as a rate per 1000 of the mean population; the eight years from 1976 to 1983 saw rates of 17.68, 17.32, 16.31, 16.73, 16.08, 16.09, 15.69 and 15.65.[9] In the 1987 *CEB Annual Report,* the effect of this demographic change was placed in a Canterbury context when the rolls of schools under the Board's jurisdiction over the previous six years were published. From the period 1982 to 1987, the total pupil population of these schools was successively 57,852, 57,378, 56,497, 53,223, 52,454 and 50,927, a decline of nearly twelve per cent. In 1987 alone, schools at Anama, Okuku, Double Hill, Lees Valley and Rangitata Island were closed. The Board was well aware of the social cost of these events; it was observed that the 'loss of the local school is quite devastating to the communities concerned' especially as local schools had 'often been the focus of community activity… generally for periods exceeding 100 years'.[10]

[8] Ibid., p.6. It was to take several years for the new system to evolve but eventually the process was established that after the Ministry had agreed to provide a new building, a financial limit on the project would be announced. The Ministry would prepare a short list of approved private architects from which the school's Board of Trustees could choose their preferred provider. The architect would then liaise with the Board of Trustees from the concept stage through to the preparation of working drawings and the supervision of the contract. Interview, Kevin Beardsley. Beardsley was the CEB's Executive Officer Buildings, and on the Board's demise was appointed to a position in the Ministry's Property Unit. (The Department of Education had been rebranded as the Ministry of Education).
[9] *NZOYB,* 1985, p.127.
[10] *CEB Annual Report,* 1987, p.4.

This is not to say that the Building Department had little to do; the backlog of work required to fully implement the new building codes of 1970 and 1971 for primary and intermediate schools continued, albeit on a diminishing basis, as well as the on-going process of repair and refurbishment and in extreme cases, replacement of obsolete buildings where remodelling was not viable. As an example of the work being planned midway through 1981, the Building Committee listed the working drawings and specifications then in preparation: administration upgrades for four intermediates, Branston, Casebrook, Kirkwood and Manning as well as for five primaries: Banks Avenue, Belfast, Bishopdale, Burwood and Thorrington. Woolston was scheduled to receive two double CEBUS units as replacements for an old two-classroom block and two separate unit rooms, while more substantial work was generated by the decision to demolish and replace the 1915 brick building at Central New Brighton while simultaneously extending the administration block and library.[11] However, as rolls in the Canterbury district continued to fall, the problem of pending code deficiencies often self-corrected; several schools that had patiently waited for an upgrade of their administrative facilities were now no longer eligible.[12]

By 1985, a typical schedule for the building programme as evidenced by the list of tenders received in February included a new boiler house and heating plant for Aranui Primary School while Winchester and Omihi were to receive new buildings to replace those judged beyond repair or otherwise unfit for purpose.[13] By 1986, it was becoming less likely that obsolete rooms would be replaced by traditional permanent structures. A schedule of accommodation needs for 1987 listed seven schools that required replacement rooms and without exception their needs were to be met by shifting unit rooms and CEBUS relocatables from schools that had surplus accommodation; all of the latter's committees objecting, as in the meantime, they had found good uses for these extra rooms for purposes ranging from storage facilities to drama practice.[14] Two examples that addressed the issues noted above reveal much about the way in which the Building Department approached these projects. Kaiapoi North School was eligible for an upgrade to code that was planned to provide more flexible spaces and an increase in storage capacity. The fact that the alterations were made to an existing CEBUS unit is significant, not only because it was easy to modify this structure but also because it was an implicit recognition

[11] CEB Minutes, Building Committee Minutes, 19 August, 1981, p.225.
[12] CEB Minutes, Building Committee Minutes, 12 October, 1984, p.373.
[13] CEB Minutes,13 February, 1985, p.35.
[14] CEB Minutes, Building Committee Minutes, 10 November, 1986, p.790 and inserted pages between pages 797&798.

that Board planners now saw this model as more than just a temporary solution to short term accommodation problems; CEBUS had achieved the status of permanence.

The standard Mark 4 unit, which had been erected on site in 1976, was to have one of its two classrooms radically altered, although the other teaching space, cloakroom and toilet facilities were not modified.[15] **(Fig.108)** The design was primarily the work of draughtsman Warren Thorpe who was highly experienced in working with the CEBUS design. The existing classroom was divided into four spaces; the designated resource area provided approximately 40 square metres with shelving along all four walls, and additionally in a central aisle that also featured a five-drawer cabinet. The design showed evidence of some thought in that the shelving was in two depths, 300mm. and 400mm., but was adjustable for height to cater for the physical size of resources ; for example, the large 'blown up' books used to teach reading in junior classes, and the boxed kits of equipment used for instruction in the new Mathematics curriculum. Shelving was also provided for storing VCR units and a monitor and extra power sockets were available to enable staff to preview videotape resources. Two withdrawal rooms were also fitted in the space of the former classroom, one small area of 9 square metres labelled '1:1', and the other, a 'Small Group Withdrawal' space was approximately double that size. Entry to the new facilities was gained from an extra entrance to the lobby and waiting room punched into the eastern exterior wall of the unit, while the existing and original entrance and lobby on the western side of the building was augmented with a timber ramp. This structure could be seen as reflecting the Board's commitment to an increasing concern towards equality of opportunity with the provision of facilities to enable the mainstreaming of physically disabled pupils while also catering for an appropriate method of transporting a VCR and television monitor, usually carried on a trolley, to other areas of the school. The drawings for this structure revealed an interesting use of prefabrication in that the ramp was assembled from standard 2 metre timber components.

An example that shows a similarly pragmatic approach, but one that also exemplifies the CEB's propensity to recycle elements of older but sound buildings to keep costs down, can be seen in the project at Winchester, 20 kilometres north of Timaru.[16] This three-teacher school was due for an administrative upgrade but the opportunity was also used to demolish an old wooden structure built in 1888 and last modernised in 1935. To replace this block the CEB decided to

[15] The plans for this project at Kaiapoi North School are at ANZC, CAMQ, 3252, CH564, box 146.
[16] All references to the design and drawings for this project are based on the plans in ANZC, CAMQ,12457, CH437, box 4.

use a double relocatable unit sourced from Twizel,[17] while a new addition of an administration area of approximately 57 square metres included a small staff room of 10.5 square metres alongside a similarly sized space for book storage as well as a casualty room and general storage facilities. The new building was clad in Hardiplank weatherboard, a fibre-cement product that had some of the appearance of timber but was much cheaper to maintain. A pragmatic decision was made to retain the open-air bungalow built in 1929; the attached shelter shed had previously been modified to provide toilet facilities and the excellent condition of the fifty-six year old rimu structure obviously persuaded the Building Department that remodelling was cost-effective. The existing stove was removed in favour of electric heating but the major change was that half of the original veranda was enclosed with a Hardiplank wall, and one of the of the original north-facing set of folding doors was removed and replaced with a window thus creating an alcove of 8.5 square metres. Given that the code did not permit the luxury of a principal's room in the new administration block for a school of this size, it seems likely that this space was to be used as a *de facto* office. The cost of providing the principal with extra personal space adjacent to his/her classroom was the butchering of the northern aspect of a classic 'veranda' type open-air room, effectively a statement that utilitarianism was more important than the celebration of character in this country schoolyard. **(Fig.109**) However, the lack of formal complaint in the relevant file[18] suggests that the school committee was not unhappy with the trade-off.

Despite the availability of small projects, the lack of large scale work such as new schools raised the possibility of excess capacity in the Building Department. This had been foreseen at the beginning of the decade and the CEB took on more work beyond its core business of primary, intermediate and area schools. The lagged effect of falling birth rates took longer to work its way through to the secondary sector that was also buttressed by a tendency for pupils at this level to remain longer at school. The changing demographic pattern of some areas within the Canterbury district also provided opportunities for the Board to demonstrate its expertise in providing CEBUS accommodation for the secondary sector in a timely manner. In August 1981 two relocatable units were erected at Methven High School[19] and in 1982, seven similar buildings were provided at Papanui High School.[20] In 1984, funding for a new music suite for Pleasant Point High School and expenses for a site development contract at Westland High

[17] See Chapter Seven, pp.144-145 of this thesis, for details of these buildings. The primary and secondary schools at Twizel were experiencing the expected roll decrease and were in the process of being combined into an area school thus freeing up a large part of their building stock for relocation.
[18] ANZC, CAMQ, 2261,CH690, box 35.
[19] CEB Minutes, Building Committee Minutes, 19 August , 1981, p.224.
[20] Ibid., 10 February, 1982, p.20

School were approved by the Department.[21] The Board had also been prepared to carry out planning and design for pre-school institutions and the volume of this work increased with the heightened demand for this category of education. For example in February 1984, specifications were being prepared for alterations to kindergartens at Redcliffs and Mairehau,[22] and in February 1985, tenders had been let for additions at Broomfield Kindergarten and for a new building at Lincoln.[23]

In Chapter Eight it was argued that open plan architecture in the Canterbury district was a failed concept and that this had become obvious since the late 1970s and early 1980s. Certainly the Board built no more of these blocks after the construction of Timaru West in 1982, ironically a much more practical plan in comparison to the flawed design of the previous decade, although even this building, the subject of self-congratulation by the CEB [24] became the target of teacher criticism on the grounds of inadequate light. The Board expressed its displeasure that the Timaru West staff, unhappy about the lack of progress made by complaining through the official channels, had politicised the issue by appealing to the NZEI,[25] an action that, however, was quickly followed by the recommendation of the Chief Architect that the provision of more skylights in the eastern side of the complex should be 'considered.'[26] A more pressing problem was the continuing fallout from the Board's *diktat* in the 1970s that all new buildings of three or more rooms should be in the form of Arthur's standard open plan model.

The demand from committees to partition the teaching spaces in these 'KFC' structures continued throughout the 1980s. For example, Prebbleton's request was immediately granted[27] but later the Board dithered about the potentially more expensive problem of Parkview Primary in the city's northeast. This school, built in 1977, consisted of nine open spaces in one expanded open plan structure and one relocatable unit of two rooms. By the mid-1980s the demographic change associated with the maturing of new housing areas had started to have a negative effect on the roll of this school, a movement that its school committee argued was exacerbated by competition from the nearby school of Windsor.[28] In December 1987, the CEB decided to strip

[21] CEB Minutes, Building Committee Minutes, 8 February, 1984, pp.16 -17.
[22] Ibid., p.16
[23] CEB Minutes, Building Committee Minutes, 13 February, 1985, p.35.
[24] See Chapter Eight, pp. 164-165 of this thesis.
[25] CEB Minutes (Confidential Section), 15 March, 1985, p.65
[26] CEB Minutes, Building Committee Minutes (Confidential Section), 13 March, 1985, p.76.
[27] Ibid., p.95.
[28] Windsor had opened in 1970 and hence had been built to the 1956 code predating the open plan schools of the later 1970s. Windsor school plans are at ANZC, CAMQ, 2261, CH690, box 35.

Parkview of its remaining relocatable, an action that prompted a heartfelt letter to the Board from the Parkview School Committee complaining bitterly that the unit was going to Windsor, a school 'to which a considerable number of our children have shifted,' the reason for the migration being that 'Parkview is open plan.'[29] The Building Committee, on the advice of District Senior Inspector, Bede Cooper, refused to change its mind about the relocation of Parkview's temporary and only conventional classrooms [30] but did agree to the resumption of a staged programme of partitioning the teaching spaces within the school's open plan blocks.[31]

In 1984, the CEB Building Committee had received a report from the Buildings Consultative Committee of the Education Boards' Association, that noted that 'Schools Division is of the view that there is less pressure for the provision of Open Planning' and conceded that schools were indicating that they wished to revert to individual classrooms.[32] This was a subtle and face-saving method of indicating to the individual boards that the Department had admitted that this form of planning had failed and should be discontinued. However, the CEB still faced several years of increasing demand from disgruntled committees pushing their case for the palliative measure of erecting walls around teaching spaces within their unwanted open plan buildings.

The 1980s presented an opportunity for the Board's Building Department to reflect on the way in which changing educational needs and social attitudes had modified the answer to the question of what constituted an appropriate classroom. In September 1985, the Organisation for Economic Cooperation and Development sponsored a national conference on educational architecture. This event was attended by the Minister of Education and the Director General as well as Treasury representatives and boards' architects, while a trans-Tasman dimension was provided by the presence of officials from Adelaide and Canberra. The conference report noted that the post-war need for speedy erection of accommodation had been achieved and that the aim of providers should now be to reach a higher quality in future construction of new buildings or the remodelling of existing structures; it was asserted that 'No longer will wooden floors, cold water… [and] a spartan environment satisfy the New Zealand educational community.'[33] In

[29] CEB Minutes, Building Committee Minutes, 10 February, 1988, pp.57-58.
[30] CEB Minutes, Building Committee Minutes (Confidential Section), 9 March, 1988, p.12.
[31] Ibid., 13 April,1988, p.223.
[32] CEB Minutes, Building Committee Minutes (Confidential Section), 14 November, p.573.
[33] This non paginated report was inserted into the CEB Minutes, Building Committee Minutes, 9 December, 1985, following p.727.

1987, the CEB's new Chief Architect, Peter Greening,[34] indicated his agreement with this sentiment when he advised the Building Committee that his main aim would be to refurbish the existing classroom stock to provide a 'brighter and more cheerful environment for staff and pupils'. He foresaw the provision of better lighting and acoustics and the use of carpet as a standard item of soft furnishing. Greening also showed that he understood the requirements of the coming revolution in communications technology by observing the need for more power points for the installation of video and computer hardware.[35]

In 1987, the decision to replace an old four-classroom block at Kaiapoi Borough School with a new permanent structure gave the Board's Building Department an opportunity to unveil a new concept. The process started in May 1988, when DSISDAC hosted a meeting to which Brian Wilkinson, the principal of Kaiapoi Borough School was invited, an occasion at which two Board architects discussed the principles behind the planning for the new building.[36] The committee, including the teacher members, was so impressed with this plan and what seemed to be genuine consultation, that a unanimous vote of appreciation to the architectural staff was passed.

The new design was primarily the work of Howard Wills, working under the direction of Ross Megget, the Assistant Chief Architect. Wills had joined the Board in 1987 after a varied career including work in London and Brisbane, in Christchurch with Warren and Mahoney and then with Gavin Willis, and a stint in private practice.[37] The complex he designed was entered by pupils from the south through one of two sets of double doors; bag racks and toilet facilities were immediately available in a large concourse area that led towards four octagonal classrooms in two sets of two, one running northeast, the other northwest from the southern base of the building, thus maximising either the morning or afternoon sun. **(Fig.110)** However, the use of skylights also helped to ensure all day natural light, for example each room benefited from a large Velux unit, 1.25m.x 1m., while the problem of glare was mitigated by wide overhanging eaves. A set of folding doors presented the possibility of each set of two rooms being opened out into one large space. The rooms themselves were relatively small, approximately 55 square metres, but the space saved was allocated to a range of ancillary areas; a teacher-

[34] Fred McCook gave notice that he would retire on 28 April, 1987. CEB Minutes,813 February, 1987, p.5. His replacement, Peter Greening, had been the Board's Assistant Chief Architect.
[35] CEB Minutes, Building Committee Minutes, Report of DSISDAC to this Committee, 17 July, 1987, pp.465-467.
[36] CEB Minutes, minutes of the meeting of DSISDAC, 26 May, 1988, included in the Building Committee Minutes of 13 July, 1988, pp.451-2.
[37] Interview, Howard Wills.

resource/workroom of approximately 9 square metres led directly from each classroom, and the complex also boasted two withdrawal rooms, each 10 square metres, as well as a counselling room of 12 square metres. A large storage room of 30 square metres, situated between the toilets at the south of the concourse, was available for resources common to all classes, for example video gear and class sets of books. In profile the complex had the appearance of a separate community with the steeply pitched roof line of colour steel over the classrooms complemented by the flat roofs of the offices and concourse area**. (Fig.111)**

It is easy to understand why DSISDAC was so effusive in its appreciation of this design; this structure at last provided the sort of environment that was envisaged by the NZEI in 1975 and the Departmental report on open plan classrooms of 1977.[38] To this extent it is possible to view the building as the final resolution of Arthur's design of the mid-1970s. Howard Wills had produced a prototype that could have been viewed as a model for the 1990s and beyond; it was flexible in that the classrooms could be used as discrete learning areas or could be opened up to create spaces of over 100 square metres for larger groups. However, the major advantage from a teaching point of view was the extra space allocated to resource areas and withdrawal rooms; it is highly ironic, that four years after the Department had discreetly announced the death of open planning architecture, that a design had at last been produced that could have answered the criticisms of school committees and teachers whose hostility had done so much to ensure that the 'KFC' structures would become enduring but embarrassing white elephants. It is true that many of these problems had been addressed in Arthur's final design at Timaru West, but Wills' more coherent plan for Kaiapoi Borough School also featured a further improvement in the extensive resource and withdrawal areas and a conscious attempt had been made to tackle the problem of supplying natural light to all areas of the building. [39]

It is perhaps significant that this model had been the work of a practitioner new to the Board and largely unfamiliar with the nature of the buildings that had been provided by previous designers.[40] Howard Wills' approach showed a freshness that arguably resulted from his experience in the commercial world. He commented that the work he did for the Christchurch architect, Gavin Willis, when they were designing a motor lodge complex at Omarama,

[38] See Chapter Eight, pp.166-167 of this thesis.
[39] The drawings for this building are held at ANZC, CAMQ, 3252, CH564, box 148.
[40] The Building Department's estimate for the classroom block exclusive of heating, landscaping and classroom fittings was $339,150. Application for Funding, ANZC, CAMQ, CH690, 22261, box 15, March 30, 1989. There were ten tenders; the lowest being Trishdale Development's $377,771 and the highest, $631,955. CEB to SRO, ibid., 2 May, 1989.

influenced his overall approach, especially in resolving the problem of the roof line, although he also reflected that the ability to discuss his evolving concept with colleagues more experienced in educational architecture was immensely helpful.

The design and construction of the Board's last major project was played out against the review that finally determined the CEB's demise. At first this process raised little concern; it was seen merely as the latest manifestation of the tension between the Department of Education and the local influence of the regional boards. A hundred years before, George Fisher, the Minister of Education from 1887-89, had accused the boards of mismanagement and even hinted at corruption.[41] The early years of the twentieth century had seen a gradual reduction of local influence, a process continued in the Education Act of 1914.[42] The late 1920s and early 1930s saw a passing parade of different Ministers of Education but the enduring Departmental custodianship of a single Director, Theophilus Strong, who maintained a personal agenda to 'nationalise' the boards; he actively sought to abolish them on the grounds that such a measure would promote 'significant efficiencies.'[43] After the Second World War, the Department of Education progressively reduced the boards' powers; a process especially relevant to their building departments which lost authority to negotiate for and to acquire land, and, under the prescriptive code of 1951, seemed to be in danger of losing the planning independence they had enjoyed prior to this date. In 1973, the Labour Party Conference had passed a motion that the boards be abolished; this caused some concern particularly as Labour was in power at this time and had embarked upon a wide-ranging review of education involving local communities, school committees and teachers.[44] In reaction to this attack, the General Manager, David Wilson, produced a two-page press release defending the role of the CEB and advocating its worth in that Board members 'had a particular interest in their own wards and work closely with their school committees.'[45] As on all previous occasions, the government did not force the issue of abolition, perhaps calculating that there was still a popular residual loyalty to local institutions that could be viewed as a counterweight against the more remote power of Wellington bureaucrats.

By the 1980s, however, the CEB was aware that the pressure for reform was increasing although the Education Boards' Association had established a permanent secretariat in Wellington in 1976

[41] See Chapter One, p.20 of this thesis.
[42] See Chapter Two, p.26 of this thesis..
[43] Ian and Alan Cumming, *History of state education in New Zealand,* pp.239-248.
[44]CEB Minutes (Confidential Section), 17 August,1973, p.582.
[45] Ibid, insertion after p.582.

to better represent and coordinate the views of the ten constituent boards.[46] Some of the attacks were now more specific and aimed at the CEB's Building Department; for example in 1980, the Superintendent of the Department's Southern Region blamed McCook's team for planning delays, failure to follow proper procedure for handing over new buildings, and lack of adequate supervision of contractors that had left the Department with the financial liability for deficient buildings.[47] In 1985, a Departmental inspection team found that the CEB's procedures in regard to handling finances for new work was not compliant in ten areas ranging from poor assessment of costs to major overspending on projects.[48] In 1986, the government embarked on a more generalized attack on the boards when the Minister of Education, Russell Marshall, accused them of being unrepresentative when he observed that of the 120 elected members of the ten boards, only 38 were female and a mere four were Maori or of Pacific Island heritage, while the opposition's Ruth Richardson joined in the criticism when she claimed that the whole education sector needed to be more accountable.[49]

The events of 1987-89 have been alluded to in the beginning of this chapter, but unlike the earlier piecemeal efforts to rationalise education administration in New Zealand, the fourth Labour government was driven by an ideological determination to undertake the macro-economic reform necessary to create a system more responsive to the demands of the market; in this context, restructuring education administration was only one part of a radical overhaul of the economy. Boards were seen as unnecessary intermediaries in the interaction of the two main components of the system in that they stifled the ability of the school committees that represented the parents of the pupils to make the necessary choices as to how they should use the funding provided by central government to best produce the educational outcomes required by the central agency, the Department of Education.[50] The advantages of such reforms were claimed to be clear accountability that would lift the performance of teachers and pupils, while the pay-off for the taxpayer was assumed to be the decreased costs of a more efficient system.[51]

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[46] Nimmo, p.3.
[47] CEB Minutes, Building Committee Minutes (Confidential Section), 16 July, 1980, p.297.
[48] CEB Minutes, Building Committee Minutes, 21 July, 1985, p.1 of a report following p.317.
[49] These comments came from speeches at the Education Boards'Annual Conference in 1986, reprinted in the CEB Minutes, 8 October, 1986, a two page insertion after p.743.
[50] David Lange made this point in his speech to the EBA when he claimed that 'Education, if it is to be effective, must respond to the character of the community it serves.' This speech was reproduced in the CEB Minutes, 11 September, 1987 on p.11 of an insertion after p.535.
[51] A concise discussion of the background philosophy to these reforms can be found in Simon Smelt, *Today's Schools, Governance and Quality*, Institute of Policy Studies, Victoria University of Wellington, Wellington, 1998, pp. ix-xii.

The 1980s had proved to be a period that concluded with the clearing of the administrative decks to enable the construction of a new and hopefully streamlined model that would also be more responsive to local needs although despite the development of the promising new building constructed at Kaiapoi Borough School, the decade will not be remembered for its architectural innovation. Considerable effort was expended in patching up the problems caused by the inadequate open plan models of the 1970s while falling rolls had removed the need for the construction of new schools. Most of the demand for the replacement of ageing and obsolete accommodation was met by recycling CEBUS structures from schools whose declining populations could no longer justify the need for these buildings. The Board continued to investigate ways to widen the appeal for its successful relocatable model; in 1985, CEBUS Mark 5 was developed to cater for the secondary schools' market where the relevant building code permitted a narrower structure.[52] If the decade was characterised by a theme, it was to confirm the primacy of this versatile and flexible technology.

[52] The idea for this development was broached in an intra-departmental memo from McCook to the Executive Officer Buildings, ANZC, CASY, CH229, box 22, 26 August, 1984 and in the next year, the Department of Education requested the Board to prepare the relevant drawings. Thomson to Greening, ibid., 26, June, 1985.

Chapter Twelve. Retrospective.

A major and recurring charge against the board system of providing buildings for local education districts was the perceived waste and inefficiency characterised by duplication of effort. Board architects, working to the Department's codes or guidelines, designed individual schools or additional and/or replacement buildings, and submitted these plans to the Department's architectural office for approval. The Board could not commence working drawings, call for tenders or let contracts without the specific permission of the Wellington office. The decision to create a Departmental Southern Regional Office in Christchurch from 1960, actually introduced another stage in the system as plans went from the CEB office to the Regional Architect who often opened a further dialogue with the Departmental Architect in Wellington. For example, the planning process after the Board's agreement to build Hornby High School was significant for the high degree of teleprinter traffic between the Southern Regional Office and the Department in Wellington, the major effect being to slow down a process already subject to a tight time schedule.[1]

Given that the method appeared to be inefficient, it is important to focus attention on the quality of the buildings provided for the children, teachers and communities of the Canterbury district over the period 1916 to 1989. One way to approach this task is to judge the Board's performance against a template of principles of what makes a good school in a physical sense. As noted in the introduction, Cynthia Uline has asserted that it is a basic responsibility of local education authorities to provide 'decent' schools for their communities. The major criteria for making such a judgment include the provision of structurally safe buildings that provide warmth, ventilation, light and sufficient space as well as adequate sanitation. However what was regarded as acceptable at the time of construction could well be seen as substandard a generation later. One example, admittedly an extreme one, is that Mountfort's neo-Gothic Christchurch East school received a most positive reception in 1875; it presented all the attributes seen as desirable at the time. Light was admitted from the south to prevent the harsh glare from the sun interfering with pupils reading from the blackboard. Gallery seating was seen as an efficient way of ensuring that one teacher could instruct large multi-level groups and perhaps most

[1] See Chapter Seven, p.143 of this thesis. However, it should be noted that by the 1980s, the Board, acting with the Southern Regional Office, had acquired more responsibility in approving straightforward projects without the need for referring such matters to Wellington.

importantly, the external profile of the building projected the social and religious values that reflected the ethos of High Victorianism. A generation later the building was already an embarrassment; successive school committees had demanded repairs and refurbishment but it was not until the mid-1930s that the CEB and Department were prepared to demolish the building and to replace it. The School Committee Secretary had written to the CEB reciting a long list of problems that could not be fixed by further tinkering and concluded, tellingly, that

> [The conditions are] 'most trying… owing to the lack of proper ventilation and sunshine, the structure has outlived its usefulness and the present site is worthy of a building that is in keeping with its times' [2]

From the 1890s until about 1920, the NCEB and CEB architects followed the use, by English educational authorities, of the Queen Anne style for new schools. However, the gabled polychromatic brick schools such as Somerfield and Waimairi were still not built to maximise the warmth and natural light from the sun and continued to feature the Victorian technology of tubes and roof towers that were supposed to ensure a flow of fresh air despite a growing realisation that such a system did little to mitigate the unhealthy stuffiness that detracted from children's ability to learn.

In the context of the 1920s, the buildings designed by George Penlington were much closer to the concept of a decent school. His classroom blocks were oriented to the north and the admission of natural light was maximised by an increase in the area of fenestration. Effective ventilation was achieved via the simple system of opening clerestory windows in the northern and southern classroom walls. Communication corridors were on the south side of the building and a system of central heating was achieved by a central coal-fired boiler rather than reliance on the smoky and inefficient open fireplaces of the nineteenth century. Perhaps the double storey versions at Christchurch West, Phillipstown and Richmond could be accused of being needlessly monumental with the classical columns at these schools and over-scale formal entrances hardly sending a welcoming message to small children. However the classroom design did indicate that Penlington was skilled in working to the 1921 Departmental code that was based on the tacit premise that the internal dynamics of classrooms and corridors were more important than external appearance.

[2] King to Secretary Manager of the CEB, ANZC, CAMJ, CH191, box 69a, 11 June, 1934.

The local clamour for open-air bungalows in the 1920s was testament to the effectiveness of a well-organised minority that understood the power of the print media and the art of moulding public opinion. The purist line of the Open Air Schools' League was to demand that school yards throughout the Canterbury district should feature a picturesque dispersal of individual northwest-facing timber bungalows that, in reality, were probably no 'healthier' than Penlington's code-based designs of the same period. Penlington's strategy was to pay lip service to the OASL's concept while slowly modifying the design, and his successor, John Bigg, further developed the model into the famed veranda block that dominated Canterbury schoolyards, and those of some other districts, for more than two generations. Of all the buildings designed by the Canterbury Board architects, this model surely came closest to the concept of the decent school when judged in the context of contemporary building technology. Its appearance was unpretentious yet attractive, its long northwards facing veranda hinted at a relaxed nostalgia while it was also safe, being of a single storey timber construction, and the building could be centrally heated. Ventilation was effective; the cross flow of fresh air from open clerestory windows could be complemented by opening one or both of the sets of glazed bi-folding doors onto the veranda. It was the latter feature that dominated the building, acting as a means of communication, extra classroom space, a method of speedy egress if required, as well as a covered area for pupils to eat their lunches on wet days. This practical structure is still in use in some schools in the early twenty-first century although it lacks the necessary storage facilities or ancillary space to support the needs of modern teaching. However its disappearance from CEB construction schedules in the mid-1950s had more to do with the attempts of the Department to centralise planning, and hence to reduce costs of building, than any dissatisfaction from local school committees or teachers. The chosen vehicle for this approach, the Dominion Basic Plan, did provide adequate facilities, but its failure to generate the desired economies presented the Board architects with a chance to reassert their independence in again demonstrating their ability to design new schools that suited the Canterbury environment from both a physical and social viewpoint. However the possibility of expressing some regional creativity while working within the White Lines of minimum standards and maximum cost was never really resolved under the attenuated leadership of John Bigg; the buildings provided in the 1960s tended to be bland restatements of the DBP.

In the 1970s, the changing building codes and the Departmental encouragement of a new philosophy of teaching and learning, presented boards with the opportunity to advance an architectural response to the centrally-inspired wish for flexibility of design to facilitate the

nirvana of a more pupil-centred style of learning. That the CEB's answer was not a success was partially due to the Department's failure to clearly articulate the concept of cooperative teaching to a professional workforce that tended to conservatism. However it must be said that John Arthur's distinctive open plan complex also had practical problems; these structures were prone to internal gloominess, especially on cloudy days when the large central lantern, designed to utilise natural light, was of little benefit, an effect exacerbated by its tendency to leak.[3] The architect's pursuit of flexibility actually promoted the opposite effect; the open spaces and lack of effective partitions and adequate withdrawal areas created a situation whereby it was difficult to teach small groups, or even one class, without noisy distraction from other activities within the building.

Perhaps the dominating feature of Canterbury schoolyards from the late 1940s was the presence of temporary buildings. The post war prefabs did not meet the reasonable expectations of school committees, pupils or teachers and many baby boomers were condemned to spending at least some of their primary school years in accommodation that was demonstrably worse than the buildings constructed in the 1930s. That prefabs had to be used so extensively was at least partially the fault of the CEB; despite the prodding received from successive Ministers of Education and Departmental officials, the Board had failed to provide more adequate buildings in time for the predicted arrival of the baby boomers. The unit room was an improved form of temporary building, but never achieved the success of the more highly engineered CEBUS relocatable, a structure that was a result of a collaborative effort on the part of the personnel of the Building Department and one that evolved over time to meet the changing requirements of Canterbury schools.

After the death sentence had been pronounced on the boards in 1988, the Education Boards' Association circularized its members and asked each to contribute an article towards a publication reviewing and commemorating the board era.[4] The CEB's contribution was the shortest, requiring only six pages in which such supposed highlights as its participation in the 1950 Canterbury Centennial and the 1974 Commonwealth Games in Christchurch were reviewed. The only textual reference to the school buildings supplied over its 73-year history

[3] The CEB's Heating Engineer during this period maintained that the dampness experienced in these structures was a function of condensation on cold, wet days rather than a lack of water tightness. (Personal Communication, Ted Loversidge.)
[4] John Nimmo,(ed), *End of an Era, A Short History of New Zealand Education Boards*, New Zealand Education Boards' Association (Inc.), Wellington, 1989.

was a brief review of the CEBUS structure, an obvious indication, at least from the vantage point of 1988-89, that this was seen as the most significant architectural achievement of the Board.[5]

It may be argued that ideally, educational design should help to inspire pupils and teachers towards a love of learning, a quality that perhaps implies an element of beauty in form as well as efficiency in function. If Karl Otto was correct in his assertion that schools are 'symbols of the educational conceptions of their time,'[6] a cynic might well have responded that the uniform shed-like profiles of CEBUS relocatables presented the air of an educational transit camp, however, this structure offered many of the qualities of a decent school. The rooms were warm and dry and they incorporated cloakrooms and toilets. They emulated the veranda blocks in that the northern and southern fenestration provided for natural light but were complemented by more generous artificial illumination. When used as the basis of a whole-school design rather than as single additional units, sympathetic planning could result in their integration to form courtyards, rather than aping the sterile linear arrangements of 'prefab alleys,' a configuration also dictated by the Dominion Basic Plan of the early 1950s. If external form was everything in nineteenth-century schools, there had been a 180 degree-shift to the era of the dominance of CEBUS when function ruled. The new concept also made nonsense of the traditional division between permanent and temporary buildings. CEBUS was not a cheap option but it was more flexible than classroom blocks built in the 50 years following World War One. There are examples of CEBUS structures still in use more than 40 years after they were first installed, yet unlike rooms featuring bricks and mortar firmly fixed to floors of concrete slabs, they could be easily removed from their bed of concrete piles and relocated to a school where the need was greater. The basic CEBUS unit was also cheap to modify and its construction as a series of modules braced at regular intervals by pairs of pine portal frames also conferred strength and hence safety.

By 1989 an observer would have noticed that irrespective of the age, size or location of the school, a majority of those in the Canterbury district would have some evidence of the contribution of CEBUS technology; this could be in the in the form of one or more standard double units, a single space library or the more comprehensive use of the system to provide administration blocks or in integrated clusters of structures as used in the intermediates of the

[5] If space taken in this publication is an indication of its importance, the development of CEBUS was seen to be no more significant than the Board's membership of the Waimairi Afforestation scheme of 1931, ibid., pp. 70-71. (Both topics generated ten lines of text.) The only other reference to buildings was pictorial: an aerial view of Riccarton Primary School taken in 1959.

[6] Karl Otto quoted in Seaborne and Lowe, vol. 2 p.xv.

1970s. If our observer had some sense of architectural historical perspective it would be noted that Victorian and Edwardian school buildings, once evident at older schools, had all been removed in favour of more modern structures. The two neo-Gothic masonry buildings, erected in Kilmore and Peterborough Streets still existed but were no longer the responsibility of the CEB;[7] teacher-training, was by then under the control of its own independent council, and both primary and secondary divisions had been relocated to a new site at Ilam on a concrete modernist campus, a process completed by 1978. By the end of the board era, few examples of Penlington's buildings constructed to the 1921 code existed, although the elegant but potentially dangerous double-storey brick block at Hagley Community College, formerly Christchurch West District High School, had survived, albeit under threat of demolition.[8] Papanui Primary School, built from timber, had, however, retained its original main block; despite embellishment it still reflected the ambience of its 1925 design.

In retrospect it can be clearly seen that the task of Board architects was to design buildings that conformed to the standards laid down by the Department and to strict budgets. There was no room in the offices of the CEB's Building department for virtuoso performers with the ambition of making personal architectural statements, yet this restriction did not preclude the possibility of excellent design within the necessary constraints. The three long-serving Canterbury Chief Architects, Penlington, Bigg and McCook saw themselves as essentially practical professionals and all could all point to successes on their respective watches. All had their weaknesses, neither Penlington nor Bigg was a good administrator and both had, at times, rather fractious relationships with their employer. McCook's concept of consultation did not always square with the demands of committees and teachers in the 1970s and 1980s, an era when community groups were more likely to stand up for their right to take part in decision-making that would affect them and their children. In the final analysis it may not have been in the Board's best interest that its first three Chief Architects aggregated 70 years of service; staleness was a danger despite the national conferences for board architects that provided opportunities for the sharing of ideas. At worst, such long-serving senior employees could succumb to hubris; Bigg realised that he could not be dismissed for lack of productivity, and as a senior employee already on the top of

[7] Farr's Normal School was, of course, built half a century before the beginning of the period under review, but like Penlington's Teachers' College, had been recycled by being sold to a private developer and eventually re-emerging as an apartment complex. At the time of writing, the latter had avoided the fate of Farr's building which was controversially demolished in 2012, one of the many heritage buildings destroyed in the nihilistic aftermath of the 2010-2011 earthquakes.

[8] This building was eventually rebuilt in the early 1990s with only the strengthened and refurbished northern facade retained from the original structure.

the pay scale, and hence having no incentive to win further promotion, it was too easy to reduce output to the minimum until mandatory retirement was enforced on his sixty-fifth birthday, a regulation later tightened when sixty became the age when employment with the Board was terminated.

In 1956 the Director General, Clarence Beeby, had advocated the formation of teacher consultative committees at district level, however, as noted earlier, the concept of continuous feedback from teachers being used as an element for future classroom design appeared to lack effectiveness in Canterbury. DSISDAC was dominated by successive Chief Architects, Bigg and McCook, and by a series of paternalistic Senior Inspectors[9] who seemed reluctant to place too much weight on the opinions of classroom practitioners, although in the last three years of the Board's jurisdiction, the last Chief Architect, Peter Greening, appeared to be more in tune with the participatory expectations of the CEB's stakeholders.

It is, however a mistake to characterise the quality of the Board's design work solely by the type of leadership displayed by its respective Chief Architects. The Building Department was particularly lucky in the skills and long term commitment of its draughting staff; in the 1920s, George Penlington's designs owed much to the highly professional presentation of David Hutton's drawings, while Harry Stewart played a similar role for John Bigg in the mid to late 1930s. Later, long-serving practitioners such as Len Stone and Warren Thorpe were given design responsibilities beyond the basic role of draughting the work of an architect. For example the former appeared to be given creative licence in the design of the new Arthur's Pass school in 1961-62. The Board was also lucky in the calibre of its Assistant Chief Architects who played a vital part in taking the responsibility for individual projects. David Batchelor brought the perspective of international training and experience to his role and, with Chief Draughtsman Owen Rees, played an important part in the team effort that produced the CEBUS prototype. With his fellow Assistant Chief Architect, the formally unqualified but intensely practical Murray Colechin, Batchelor formed an effective partnership in taking responsibility for Manning and Branston Intermediates. Peter Greening's work as deputy to Fred McCook had proved

[9] As late as mid-1987, the CEB's General Manager was still trying to convince the Senior Inspector of Primary Schools to 'place greater emphasis on the role of this committee.' McNeil to Cooper, CASY, CH229, box 2c, 23 May, 1987.

highly acceptable to the Board as evidenced by his appointment to the Chief Architect's role from a field of six in March 1987.[10]

Undoubtedly, one of the most important requirements of a decent school is that it should be physically safe. The fact that the two of the most destructive aftershocks linked to the September 2010 Canterbury earthquake occurred during school hours[11] but resulted in no fatalities or serious injury is, perhaps, testament to the sturdy design of schools built during the Board era.[12] It is true that most of these schools would have had some accommodation added in the twenty one years after the CEB relinquished control at the end of 1989, but the majority of buildings in Canterbury primary, intermediate and area schoolyards would have been erected in the era of Board responsibility. As a generalisation, school buildings in Canterbury in 1989 tended to be single storey and timber framed while those built in the 1970s and 80s were clad in asbestos or concrete fibre board products, materials that seemed to survive acute seismic shock very well.[13] The brick and Summerhill stone concrete block veneers on buildings erected in the 1950s and 1960s were, in some schools such as Banks Avenue and Harewood, subject to cracking, but in these and similar cases the strong timber framework prevented the collapse of exterior walls.

Thus, yesterday's schools proved to be equal to surviving the challenge of the most serious natural disaster in the history of the province although the Board's Building Department should be remembered for more than this. At best its designs evolved into highly successful buildings that were adopted by other districts in New Zealand but the real measure of the Board's contribution is that steady progress was made over the seventy-three years of its jurisdiction over Canterbury primary, intermediate and district high schools and the area schools that replaced the latter. By the standards of the 1921 Departmental code, much of the building stock inherited by the CEB was inadequate. By 1989, the 50,000 pupils in 332 Board schools[14] were enjoying

[10] CEB Minutes, Staffing Committee Minutes (Confidential Section), 12 March, 1987.
[11] These earthquakes were on 21 February and 13 June, 2011.
[12] After the earthquakes, the Building Research Association of New Zealand was contracted by the Ministry of Education to prepare a report on the safety of New Zealand school buildings. Specific reference was made to Canterbury schools and a major conclusion was that 'timber-framed school buildings performed very well… with no major structural damage caused by ground shaking.' This report was summarised in the *Press* of 21 October, 2013.
[13] Peter Greening confirmed that these claddings were used for their cost advantage and commented that they also 'took paint better' than timber weatherboard, but were 'not consciously' chosen for their potential robustness in the case of earthquakes. Interview, Peter Greening.
[14] Nimmo, p.71. It should be noted that the number of schools under the CEB's jurisdiction had been bolstered by the increasing number of former private schools being admitted into the state system as the result of the *Private Schools Conditional Integration Act,1975.*

conditions that had improved with successive building codes and the consequent design and construction of buildings to reflect these standards.

A final verdict on the Board's overall effectiveness as a provider of decent schools to the communities of the Canterbury District cannot be made on the basis of this thesis; valid historical judgments tend to be comparative rather than absolute. A similar study of another board's building policy over the same period could be attempted and used as a benchmarking exercise against the achievements of the CEB. A more ambitious project would be a general study of school buildings in New Zealand over a defined period. In fifty years' time, an attempt could well be made to compare the success of the building programmes carried out in Canterbury during the Tomorrow's Schools era with those of the CEB in the preceding period.

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ABDU: Taranaki Education Board.

ABEP: Ministry of Education, National Office.

ABGC: Ministry of Education, Nelson District Office.

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CAMC: District Commissioner of Works.

CAMJ: Canterbury Education Board Files.

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CASY: Residual Management Unit of the Canterbury Education Board

CAUJ: Addington School.

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Kevin Beardsley: Executive Officer Buildings CEB (1971-89)
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George Dryden: Principal of Paparoa Street and Elmwood Normal Schools (1965-68, 1969-83)
3 Penruddock Rise, Christchurch, 29 April, 2010.

Robert Evenden: Assistant Chief Architect of the CEB (1960-63)
Christchurch, Telephone interview, 10 February, 2012.

Peter Greening: Assistant and later Chief Architect of the CEB (1971-86, 1987-89)
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Merle Gregor: Assistant Teacher, Elmwood Normal School (1949-55)
2 /106 Veitches Road, Christchurch, 22 August, 2011.

Nedra Johnson: Elected member of the CEB, Christchurch West Ward (1973-89)
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Fred McCook: Assistant Architect of the CEB (1952-60) and Chief Architect
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Don Donnithorne: Architect.

Garron Dowell: Deputy General Manager, CEB (1986-89)

James Dykes: Formerly Senior Lecturer, Christchurch Teachers' College.

Harry Evison: Formerly Senior Lecturer, Christchurch Teachers' College.

John Fletcher: Formerly Senior Lecturer, Christchurch Teachers' College, former National President of the Post Primary Teachers' Association, writer on educational issues.

Julia Gatley: School of Architecture and Planning, University of Auckland.

Julie Greenwood, Principal, Harewood Primary School

Jessica Halliday: Architectural Historian.

Trisha Lawton: Royal Institute of British Architects.

Ted Loversidge: CEB Heating Engineer (1972-1989)

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